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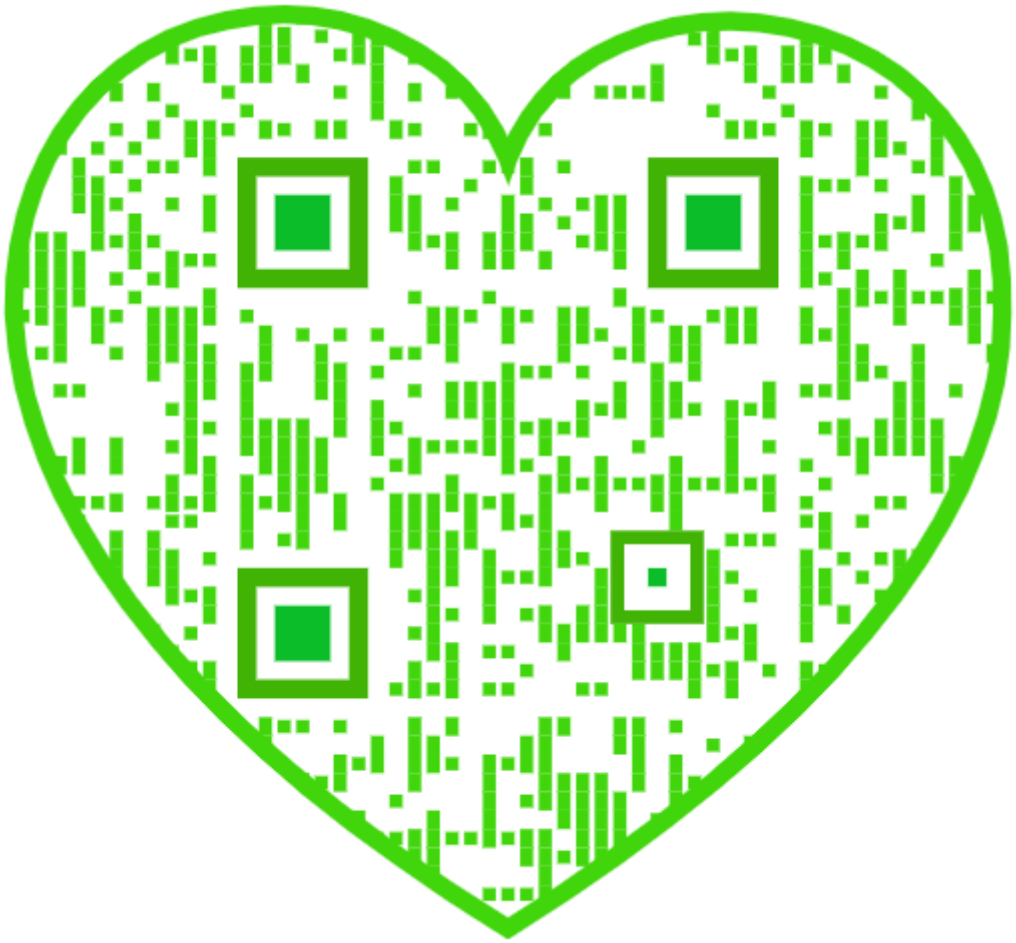

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Very truly yours,

L. L. Langstroth.

The American Apiculturist.

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LANGSTROTH, THE "HUBER" OF AMERICA.

BY J. E. POND, JR.

THE beginner in bee-culture of the present day can have no conception of the many difficulties that were met with under the "old box-hive and brimstone" style of management, or the almost insurmountable obstacles that presented themselves to the old-time amateur in an attempt to solve those mysteries, which now are made plain as an open book. True it is that, in days long gone by, something had been learned in regard to the habits of the honey-bee; the methods of management then in vogue, rude though they were, still were productive of some little gain. The late lamented *Quinby*, a man of vigorous frame, possessed of rare intelligence, and an acute, active and far-reaching mind, not only had shown that even with the box-hive, and such rough appliances as he necessarily used therewith, one could by close attention to the business, and by careful, intelligent management, bring about results that were fairly remunerative, but was one of the first to see and appreciate the value of the movable frame of Mr. Langstroth, and also to adopt and use it; by which use he encouraged and emboldened Mr. Langstroth to make his invention public, and thus aided in making apiculture what it now is, one of the leading industries of the world. He also by close observation enabled himself to garner in those facts which, when published and given to the world, opened a new field for labor, both intellectual and manual; and his work on bee-culture to-day, as revised by his son-in-law, Mr. L. C. Root, stands out before the world, as one of the best treatises on the subject which has ever been written.

Prior to 1852, the ablest bee-keepers of both the old and the new world were endeavoring to render the management of their bees more simple and easy, and many plans had been devised (none of which were really practicable) to enable

the whole interior of the hive, to be put under the complete control of the owner. Bars and slats of various kinds had been used to some extent, but still although a great improvement, they were not just what was desired. The march of improvement in this direction was slow; still some progress was made, but not until the Rev. L. L. Langstroth devised the sectional movable frame and introduced it to public notice, was success made positive and certain, and with its introduction the doom of the old box hive was sealed, and brimstone relegated to its natural home.

Who is the Rev. L. L. Langstroth? is a question that is often asked by beekeepers of this generation, and perhaps it may be of some interest to know something of his history.

Lorenzo Lorain Langstroth was born in Philadelphia, Dec. 25, 1810. As a boy he took great interest in natural history, and the happiest days of his youth were those spent in watching the habits of the various insects found in and near the city of his birth. His parents were of the old school, and deeming such studies the height of youthful folly, gave him no encouragement therein, and it was not until the year 1838, that he began to learn something of the honey bee. At that time he procured a colony or two of bees, and began studying them under great disadvantages, he at that time never having seen or heard of a work on bee-culture; and for the first year of his pursuit in this direction, the only published work of the kind that came to his notice was written by a man who doubted the existence of a queen bee. After graduating at Yale College, he pursued the study of theology, and was settled over his first church at Andover, Mass. His health became in a short time so much impaired, that he was obliged to give up his pastoral charge, and in 1839, he removed to Greenfield, Mass., where for a few years he was engaged in teaching. Finding that out-door labor and exercise of some kind was absolutely necessary, he devoted such time as he could spare from his duties as a teacher to his apiary, and carefully verified all the experiments of which he had read, and entered into many of his own, for the purpose of gaining such knowledge by actual observation, as might be useful to him or to beekeepers in general. The methods of management then in use were not at all satisfactory to him, and he was constantly endeavoring to devise some way or means, whereby complete control of the whole interior of the hive might be given him. He thoroughly tested bars and slats, and even endeavored to make a practical use of the leaf hive of Huber. This leaf hive, however, was too clumsy (as any one may learn by attempting to use one) and he became almost discouraged at the poor success he met with. At last the idea came to him, that if bees will build comb on bars set on top of the hive, why will they not build it in a frame hung in the

hive? He tried this plan with fear and trembling. Failure had been his lot so many times, that he had hardly dared to hope for success with this his new fancy. As we all know, this experiment did succeed, and the result was that in 1852, he introduced the frame to the public, and so well was his work matured, that the same style of frame he then devised, is now used more largely than any other, in the exact form he first devised it, and by the ablest apiarists in the country. It will be needless to enter into the many discouragements and great opposition, with which he met in his endeavor to bring his frame into general use. It *has* been introduced, and introduced fully and completely; and such are its merits, that the Langstroth frame is now used wherever bees are kept.

By the term Langstroth frame, I do not mean simply the original frame he devised, and which he still advises; but do mean that all sectional movable hanging frames, by whatever name they may be known, are Langstroth frames.

It was the hanging, sectional, movable frame principle, of which he was the inventor, and the so called "Gallup," "American," "Adair" or "Bingham" frames (or in fact all hanging movable frames) are Langstroth frames.

As an inventor the name of L. L. Langstroth will live as long as bees are kept, and generations yet unborn will revere his memory. By means of his powers of invention, and through his instrumentality in putting that invention before the public, the apiarist of to-day, with a few days' practice only, is enabled to see and observe for himself, all those mysteries of which Virgil has so beautifully sung, and which the various writers of the past were only enabled to find out, as was Huber, by long years of patient labor, such were the difficulties that then surrounded them. With the introduction of the frame a new era began, and through its means bee-culture has been raised from a business of insignificance, to one that is now barely second to any other. With the old box-hive, it was possible to gain twenty-five pounds of surplus from a single colony in a season. When we compare this with the average of one hundred and fifty pounds per colony in many large apiaries, and with the one thousand pounds from a single colony obtained by B. F. Carrol, we may well be led to assert that Rev. L. L. Langstroth is a great public benefactor.

Mr. Langstroth was not only successful as an inventor, but also as an author. His treatise on apiculture, "the Hive and the Honey bee," stands at the head of all written works on the subject, and has fairly earned the high distinction given it, of "the classic of apiculture."

Mr Langstroth is now an old and feeble man. His health was impaired in early youth by too close attention to his studies, and now he is able to do but little for himself. For a few months past,

he has been in better health, than for some years, and we hope his health will remain good, and he be spared for many years, to give us through the various bee journals the matured thoughts of his ripened mind.

Modest and unassuming in his manners, and confiding as a child in the honesty of the world, he to-day, instead of having reaped a fortune as the result of his valuable invention, is not worth a single dollar. But for all this, he stands before the world as one of Nature's noblemen, an honest man. He has fairly and fully earned the proud title that all beekeepers, who know him, admit belongs to him,—the prince of apiarists; the Huber of America.

Foxboro, Mass., Dec. 19, 1883.

BEE-POWER OR MAN-POWER, WHICH?

By Prof. J. Hasbrouck.

There is an unmistakable tendency among those largely engaged in the honey industry in this country, to divide into two schools: the one, keeping comparatively few bees, and relying upon various forcing operations, involving a great deal of labor, to secure a large crop of honey; the other, by getting comparatively little from each of many stocks, letting the bees do the most of the labor,—try to get a *larger aggregate* yield. The one, in the language of Mr. Doolittle, says, "the greatest number of colonies kept should not be our ambition, but the greatest yield from a given number." The motto of the other class is, "the greatest amount of honey possible, at the least expense;" the one party is always fighting the "increase," viewing it only as so many hungry mouths to be filled with what they prefer to have in "the shape of surplus." The other believes that if a few bees are a good thing, more are better, and that, if it will pay to feed 50 stocks, it will pay to spread over more ground and feed 100, provided they are put to good use.

The honey business has been so advertised and "boomed," in various ways, that the supply has rather outrun the demand, and it is becoming to every honey producer to study to take his honey on just as small a margin as possible so each one should consider which of the above policies seems the wiser for him to adopt in his locality and circumstances. Mr. Doolittle has evidently been studying the subject, and he plainly indicates his convictions, in the article above quoted, when he asks, "Which is considered the better farmer, the man who employs certain help to work 200 acres of land to secure a certain yield therefrom, or the man who uses the same help on 100 acres and secures as large, if not a larger amount, than does the other from his 200 acres?"

Well, according to that supposition, the 100 acre farmer evidently

has the best of it; but, I submit, friend Doolittle, you have put the most "brains" on the smaller farm, to make it yield as much as, or even more than, the one twice as large, contrary to the natural course of events. Now admitting that an outlay in muscle pays better than an investment in soil, I still think, that to be fair, you ought to allow the man on the 200 acre farm at least one-half more income than the other. Now remembering that labor is a heavier expense than interest on capital, tell us, which is doing the better business? But suppose, the one, a stickler for the "most thorough cultivation," should employ his expensive labor in trenching his land with a spade, to get a larger crop per acre, as he certainly would; while the other uses only cheap labor, but depends upon his own thorough knowledge of his business, to manage them so as to get the full benefit of their muscle, and works with steam ploughs and all labor-saving contrivances; do you not see that the smaller farmer would be distanced immediately? Now, I believe that we should study to do less work ourselves, and let the bees do more—everything that they can do as well or even better than we—that we may be able to employ more of them to our greater profit.

What, then, are some of the things which we can with advantage turn over to the bees to do?

1. Hunting queens—especially in full stocks. Many of the systems of dividing and artificial swarming still given necessitate finding the queen, and I believe much time is yet wasted by beekeepers in hunting for queens for various other purposes. This is an operation in which the bees can beat us, and we are losing whenever we try to run opposition to them.

2. I do not believe we can successfully compete with them in arranging their brood in spring. I have practised "spreading" their brood for them in the spring, and I have been "cautious" about it too, as the advocates of that operation advise, and while I can do it, I think, without damaging them specially, I find that a colony, sitting right by the side of the one I manage with superior wisdom, if allowed to have its own way, if it is in good condition, and has plenty of honey, will come out at the clover harvest just as strong and prosperous as the other. So I have concluded that they are just as good authority on how much brood it is safe to start and where to put it, as I am; and I propose to let them run that part of my business hereafter. The queen is generally ready and waiting to lay just as many eggs as are safe, and the only thing that retards her is want of warm weather, and as that is a matter over which I have no control, I have concluded I can't help her.

3. They can manage the matter of swarming more cheaply, and, I am inclined to believe more judiciously, than the most expert beekeeper can do it, by any plan I yet know of. Where there are tall trees near the apiary, it is neces-

sary to have all queens clipped, otherwise this labor may be avoided.

But some will say, the labor of opening hives and tearing down queen cells to prevent after-swarming would be about as much as artificial swarming; and that leads me to say:

4. Bees can tear down queen cells more cheaply than we. After-swarming can be prevented in every location in which I have had any experience, and I believe it can, anywhere, by introducing a young queen immediately after the first swarm issues. Any young queen will do—virgin or fertile; and the beekeeper should be sure to have them ready by the swarming time. Either kind can be smoked right in at the entrance, at that time, without danger of loss; and with the few bees then left in the hive they go right to work to destroy the queen cells without hinderance. In locations where it is necessary to clip queens, they should be fertile and clipped before introducing them to a full colony, as it would be too much work to find them for clipping afterward.

5. Bees are the cheapest help to lift honey from the lower story to the upper. I will admit that a large quantity of honey can be taken in side-boxes if it is raised to be capped; but not enough, I think, after long trial of that method, nor of good enough quality, to pay for the greatly increased trouble and labor of manipulation. In these things, and I am not sure but in some others, it appears to me almost self-evident, that we cannot afford to work against cheap Italian labor.

Bound Brook, N. J.
Nov. 14, 1883.

THE YELLOW AND BLACK RACES OF BEES.

By G. W. Demaree.

REMINISCENCE.

Soon after the Italian bee was imported to this country, and queens of this race were advertised, I learned that an acquaintance of mine, who lived some distance from me, had purchased some Italians and had them in their purity. I went to see the new race of bees and found that the owner had paid as high as ten dollars each for his queens, and notwithstanding the high price, the progeny of these queens came so far short of the description I had seen of them from the pen of Mr. Langstroth and others that I departed from my friend's house pretty well satisfied that the great Italian was a great humbug — a penny trap in which to catch the unwary. If all the Italians then sent out were such as those bees were, I do not wonder that many apiarists of that day disputed their rights — on the point of merit — to supersede their native bees. Those bees were simply third-rate hybrids. Since then I have "pinched" hundreds of better

queens than were in those days sold at ten dollars each. After this I saw several colonies of so-called Italians for which the owners had paid twenty-five dollars a colony, and these also were inferior hybrids.

For several years after this I contented myself with the native bees, having but little faith in the imported race of bees.

About the year 1870 or soon after, a shrewd German, named Fred. Kreuger started an apiary at Shelbyville, Ky., and introduced Italians in it. I called on Mr. Kreuger to see his new bees, and out of a large number of colonies I found a half dozen or more that came fully up to the description given of them and I was captivated by them at once. My German friend, differing from most beemen, was decidedly uncommunicative and seemed to dodge adroitly all the questions I plied him with. How do you like the Italians, Mr. Kreuger? I ventured to ask: "Vell za ees goot peeze. If you puys a swharm ov doze peeze for twendy-fife tollar za be goot peeze every dime." Well, while I was talking to him a swarm issued from one of his best colonies of Italians and settled on a limb. The swarming season was nearly past, and most probably this swarm would have to be fed, a fact which he knew very well. I offered him ten dollars for the swarm which he accepted, but required the return of the hive in which we put them at the time. This looked like a tight bargain on my part at the time, but as it turned out I never made a better trade on a small scale. The queen turned out to be an excellent one, and after trying many queens I have owned very few that possessed the strength of character as breeders that my first queen did. After handling Italian bees long enough to test them I became convinced that with Italian bees the business of producing honey could be made to pay as large a profit as that derived from any ordinary pursuit.

With my knowledge of the traits of the several races of bees, I am unable to comprehend how so many writers can blindly drawl out the old stereotyped delusion about the "superior traits" in the German bees. The German or native bee is essentially a "scrub" among the races of bees. If they have a single "trait" which is superior to well-bred Italians they have never exhibited it in my apiary or anywhere under my observation. "They build whiter combs;" "they are better comb-builders;" "they enter the surplus department more readily." How often have we seen these assertions in print, all of which are without the semblance of truth unless we except the first, and that is a matter of "taste" on the part of those who sit in judgment concerning the matter. It is true that the German bees "pile on" a little more wax in the process of capping and thereby give the surface of the combs a white, chalky appearance; to my taste decidedly inferior in delicacy of

finish to the delicious, velvety cream-colored combs so deftly finished up by the Italian workers.

Every well informed apiarist (as to the natural history of bees) knows that the Italian race is a "thoroughbred" of nature; hence it carries the blood of nearly all the races in its composition. Viewing the case from this standpoint, it is hardly reasonable to suppose that the accidental combination of blood in this race is perfect to the exclusion of all other races.

The Cyprian is also a thoroughbred of nature, as I have found by careful observation in breeding them. The chief points of difference between the Cyprians and Italians consist in the former carrying a greater proportion of the blood of the fiery Egyptian and a lesser proportion of the commonplace German race.

The Cyprians are the smartest race of bees known to modern apiarists, in spite of the prejudice against their irascible temperament.

This fact alone exposes the absurdity of the claims of some to develop a superior race by infusing a greater proportion of the weak German blood into the composition of the Italian.

I have found by systematic test that the high temperament of the Cyprians can be lowered to any point desired—as a general result—by mating with Italian drones, and the fierce temperament of the Cyprians can be imbued in the progeny of the Italian queens by mating with Cyprian drones.

These facts open up a field of the widest research to the progressive breeder.

Christiansburg, Ky.

MAKING HASTE SLOWLY.

By W. G. Phelps.

It not unfrequently happens that I receive from persons letters similar in purport to the following, copied verbatim from a portion of one just read. The italics in this letter are mine.

Nov. 20, 1883.

Dr. Phelps, Galena, Md.:

Dear Sir,

"I have an idea of engaging in the bee business, and should I do so it will be on a *large scale.* Now, I know *nothing whatever* about the business, and wish to get all the information I can. Will you oblige me therefore, "by giving" the best mode for managing a colony for bees," etc., etc.

Of course, I aim to give each inquirer all the information in my power, but the very best advice for them is to *make haste slowly.* By making haste slowly the mere novice will hesitate well before investing his capital in 50 or 100 colonies of bees, one-third of which may prove feeble stocks, simply from the fact of his ignorance in purchasing. The experience of any beekeeper of any note has ever been that a limited number of colonies pay proportionately far better than large apiaries. The beginner must necessarily manip-

ulate his frames and fixtures more slowly, than one familiar with bees. He has much to learn as he goes along, and to be an expert much time must be spent in reading, experiments and investigation. Let me implore you therefore, give your attention to a few colonies, be sure you are right in all particulars and then go ahead. Now, suppose you are ready to sail in, are provided with several swarms in movable frame hives (the more's the pity if your bees are in the old-fashioned box hive) and have that most difficult of all questions — the wintering problem — before you. What, may I ask, are you going to do about it? In a problem where even the doctors in bee-ology disagree as to the course to be pursued, who shall decide? I tell you it is just another case of fail and try. If you are living away up towards the Canada line, quite a different method of wintering may be necessary, than that in the mild and genial climate of the Maryland and Delaware peninsula. Hence the propriety of a beginner making haste slowly as to the number of stocks he ventures to winter through at the start. He may succeed, or may have reason to draw down the corners of his mouth the coming spring. Take a bee journal and read it carefully and with the understanding. Sift well the evidence you find therein. Reject much of the theoretical, especially such as is of a "slop over" sort, and take the balance with caution. "Believe nothing you hear, and only half of what you see," says one old philosopher, and that advice applies quite well to much that is written on agriculture and bee-culture. Remember that no class of men get more enthusiastic over a pursuit than bee men over theirs. If you are a novice, ten chances to one you have got the "bee fever" bad. In such a condition, men, while perfectly rational on all other subjects, are certainly a little "off" on bee-culture. They frequently dash off an article at such times, making pet theories and half tried experiments (quite innocently perhaps) appear as tested facts. Once more let me urge you to take up at first the pursuit to a limited extent. Observe, compare, reflect, record, and you may, in due time, reap a harvest of golden sweets from the millions of busy workers under your control.

Galena, Mo.

A VISIT TO FOUR OF THE LARGEST ITALIAN QUEEN BEE-BREEDERS.[1]

By Dr. A. Dubini.

Leaving Arona by boat, in five hours I reached Locarno, and repaired at once to the Gymnase Saint François (High School); it is here, that Professor A. Mona lives, and here is found, in the garden of the high school, one of the apiaries that he keeps for his trade in queens. Here I found a

[1] Translated from "L'Apiculteur.

goodly number of his large hives, constructed with movable bottom boards, and externally clothed with straw; there were spread about also many small hives or nuclei, likewise with movable bottom boards, holding 4×5 frames all covered with bees, each with its queen already fecundated.

Opening one of these large hives is found a diaphragm which serves in summer to change the capacity at will, and which is replaced in winter by another, thicker, made of straw and slats of wood which helps to keep the colony warm. Mr. Mona calls this diaphragm a "restrictor" (in America a division board) which word he thinks better designates a movable partition.

The frames of the nuclei are half the size of those in the large hives. By cutting a large frame, and its comb in halves he can at all times take brood from a large hive to a nucleus.

Mr. Mona thinks that queens prefer deep frames in which they can extend the egg-laying without interruption. Sometimes he fastens two of the small frames into one large frame which when filled with brood or honey are detached, and put into nuclei. He almost always gives to the nuclei ripe royal cells, but sometimes also virgin queens if they are just hatched, or even queens already fecundated.

A very intelligent young man, Ernest Ruffy of Vaud, assists him in his work, and the professor shares with him a portion of the profits, on account of his great aptitude and cleverness in the business.

Just as we arrived, Mr. Ruffy was engaged in closing up a nucleus to go to Paris, containing a beautiful queen with three pounds of bees, and had still another to prepare for the same destination.

We passed the evening together to a very advanced hour, and I do not need to tell with what pleasure and profit to myself. I am indebted to the profound wisdom of the professor, and to his enlightened experience, as also to his amiability for many useful and practical hints for which I take this opportunity to express my deep gratitude.

One wish of the professor would be to establish in some good honey locality in Lombardy an apiary of 200 to 300 colonies which would be transported, when the honey flow is past in the plain, to the mountains of Lake Maggiore in order to profit by the flowering of the walnut trees, buckwheat and heather.

While doing this he would like to give free lectures on beekeeping and thus demonstrate in a practical manner how well apiculture can be made to pay with hives of movable frames and movable bottom boards.

Early next morning I left Locarno by rail, and stopped at Gordola. At a short distance from the station stand two of the apiaries of Mr. Jean Pometta, a clever and ingenious mountaineer who, after having passed several years of his life in South America, lately went off to Chicago carrying with him 240 Italian queens. He saw there all that could be learned of American methods, procured several of the most perfect machines, and came

back to his own country provided among other things with a circular saw with pedal gear, which does excellent work while occupying but little space, with a hole-boring machine which with one single point and movable cutter makes holes of all sizes; also a machine with engraved cylinders, which cost one hundred dollars, for making comb foundation.

One of the Pometta apiaries is at Tenero, three-quarters of an hour from Gordola, another at Gudo, at a great altitude, and about two hours' distance frem Gordola; the third is at Lavertezzo in the Valley of Verzasco. I did not meet Mr. Pometta at Tenero, but was received by the amiable Dr. Galletti, in whose house and garden, Pometta keeps his tools and about one hundred and fifty colonies and nuclei scattered around on the grass. Several of the hives are the same as those of Professor Mono, but the others of a newer make are of the American pattern.

I found the bees here singularly beautiful with three distinct yellow rings, and the doctor told me that Pometta conscientiously gives great attention to the selection of the queens. The doctor, while showing me some sheets of foundation, said, "It is hardly to be believed how well the bees know what to do with foundation, in the cells of which we often perceive on the second day, honey and eggs."

[*To be continued.*]

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p.* 177.)

PREFACE TO SECOND EDITION.

The necessity of publishing a second edition of this work on the management of bees (the first large edition having been exhausted in two years) must certainly give the author great pleasure, besides being a source of encouragement to him in his work. But still more are the agricultural public and every lover of bees convinced of the excellence of this method of the managing of the bees and arranging their hives in such manner, as not only is practised in this country, very often with the best success, so that one already sees apiaries of 30, 50, 100 and more colonies, but also in more distant lands (as the borders of Switzerland, in Westphalia, Westerwald, Saxony, Brandenburg, Hanover, West Prussia, and many other localities more than 130 miles distant) the value and the worth of this method have been already tested during the last two years.

It is known that the two years past, since the first edition was issued in 1780, were very poor for bees, by reason of the dry summers and the strong north winds; still I have received from time to time the news that the bees in my style of hives and with my system of management not only keep strong (while very often with

straw hives whole apiaries are destroyed, and sometimes of twenty-five colonies, only two have been saved) but they have also yielded a good profit annually, and often given from thirty to fifty per cent interest: not to mention the several royal apiaries, which I have conducted with the best success, and the profits of which are of no small account, and which may be greatly increased. Among these are noticeably the large apiaries which are established in grand style in the Schönbusch near Aschaffenburg, for His Majesty, the prince at Mainz, so interested in all branches of agriculture and economy, so industrious and honorable. In view of such convincing proof as this, it were useless to mention the prejudices of those who would follow the good old customs of their forefathers in the management of bees, who would rather sacrifice a part of them every year, and leave the others to their fate; or, again, if I should endeavor to cure the fault-finding spirit of those who make much of trifling matters and who either overlook and mistake the essential, or view them from a wrong standpoint. This idle talk is a light fog which will scatter, and such will learn to see better in the coming light, and dispense with their prejudices in due time.

That this method of managing the bees is suited for all countries, it will not be necessary to prove. If it is practicable and useful in such countries where you cannot find a great deal of food for the bees, it will certainly maintain its superiority the more in such where like the *Haiden*-parts, the honeyed flowers are very plentiful.

Instead of cutting out the honey, it would be easier to remove the full sections of surplus honey and wiser to take from the bees only as much as they can spare. It will be better to allow them to renew their combs from time to time, than to let them grow black and their cells narrow.

The amount of profit, resulting from beekeeping depends, of course, even with the best treatment, on the strength of the colonies, the locality, and the blessing of heaven. Colonies, which from various causes, have become weak, cannot be counted as among those which yield the profit, as first-class.

Every other year always gives an abundant yield of honey. Already, now, as we still have the third part of the summer before us (with us the least part) for the bees, I count from twenty colonies, by this and the honey-dew, causing a thick yellowish fog, at least 250 maas or 750 pounds of honey already stored, besides those that have swarmed and others from which queens have been reared. This holds good with other colonies, and every beekeeper, who has made his arrangements after my method testifies to the extraordinary produce of his apiary.

A few days ago, I had a call from a sensible beekeeper, a man of great knowledge, who examined my hives and assured me that he had not believed me, from the first

edition of this book, that I could have had such a profit and produce from twenty-five good colonies, nor would he now believe me if he had not seen it with his own eyes. He has found and computed that a very fortunate colony under this treatment has already brought 15 maas or 75 pounds of honey and 5 pounds of wax interest, against an outlay of twenty florins. Bee-keepers who use straw hives, and have put no boxes under them this year, lose, by twenty colonies, one ohm or 80 maas (400 pounds) of honey. What does that amount to in the whole?

As to the additions and improvements concerning this edition, they do not change anything in the main, that the owners of the first would think that useless; but contain a few new facts and descriptions of the different conveniences regarding the management of the bees and their products, although it was not necessary to print them specially and send them out as additions. I have therefore condensed them so as not to be ab-ambiguous, and to keep the matter popular.

Rodheim, July 25, 1783.

EDITORIAL.

Never, since the first number of the Apiculturist was issued, have the importance and magnitude of the enterprise in which we have engaged been more clearly presented to us, or more deeply impressed upon our minds.

It has been said that "the pen is mightier than the sword," and of a truth there is no more powerful factor, either for weal or woe, to the beekeepers, than the journals and associations which are in reality the great fountain-heads whence disseminates the knowledge of apiculture. How very important it is, then, that these should be kept *pure;* for, if corrupt, the poison is imparted to and felt by every individual member of the fraternity, who must suffer the loss.

When the leaders and teachers are whole-souled, true, and wholly devoted to the interests of the bee-keepers, then apiculture grows and thrives; but when they are enslaved by self-interest, and fettered by policy, our interests suffer loss, and the progress of apiculture is retarded.

Why is it that so many of our most prominent and successful bee-masters, and those who in times past have taken such deep interest and active part both in conducting our conventions and supporting our journals, are silent now? Why is it that neither their voices nor their pens longer take part in promulgating or defending the great truths of apiculture? There must be some valid reason why this is so; these parties are still engaged in apiculture, and are among our most successful apiarists.

It is a patent fact that, for a long time there has been a deep-rooted conviction in the minds of the more thoughtful, as the great educators of the masses, our associations and bee journals were not

accomplishing all that was desired and could be expected, and various methods have been suggested for bringing about the needed reforms; but while many improvements have been made, yet there have been those who have endeavored to crush out every effort that has been made towards making these reforms and protecting the interests of the individual beekeepers (the producers).

The first great move in the right direction is to establish and maintain a well-conducted, independent bee journal, and one which shall be entirely free from *any* connection with the supply business, upon which it may depend for support, published in the broadest sense in the interests of the beekeepers and wholly and well supported by them.

There may be, aye, there are, those who for years have disparaged any and every effort made by the beekeepers to organize and establish such a journal, and who today affirm that such a journal *cannot live* and will not be supported. It will be well therefore to study carefully the motives of those who make such statements as these and see if they have the interest of apiculture at heart, and in the past have worked for its best good.

This is no idle talk, and those who wish to see apiculture invested with a dignity which rightfully belongs to her as the sister of agriculture, and exalted to a position of honor which she should occupy as one of the most important industries of our country, should not only willingly but cheerfully contribute their part towards its consummation.

We have already completed the first volume (eight numbers) and have the satisfaction of knowing that, without one dissenting voice, it has been endorsed as equal if not superior, in mechanical make-up and amount of valuable information given by so many of the most prominent apiarists in America, to any journal published in the English language. While we are cheered and encouraged by this, yet we do not record it boastingly, but merely to give our readers assurance that whatever efforts they choose to make in our behalf, will aid in establishing a journal of which they may be proud.

We feel deeply sensible that our success is due in a great measure to the untiring efforts and unfailing support of our trusted and faithful beekeeping friends, who have encouraged us so much and rendered such material aid in contributing to our columns. The old German work, which we are having translated for our readers, and the introduction of which was given in the first volume, is well worth more than we ask you for the yearly subscription.

Our method of conducting the question and answer department is original with us, and we believe is the only true way in which to solve many of the most important and yet vexing questions which pertain to apiculture.

These are but a few of the new features of the journal, and we hope with our increasing subscrip-

tion list to be able to carry out many new plans the coming season, and by keeping up with the times to give to American apiculture a journal which shall be second to none.

Now, the question is, do our readers desire that we shall continue the publication of the APICULTURIST? If so, send in your subscription *at once*. We are working in your interest and for your good, and we feel confident that every candid and thoughtful beekeeper, who reads this January number, will *at once* decide that he cannot do without our journal, and will support it by his subscription. We appeal to your reason and judgment and feel assured that you will respond. While the rate at which our subscriptions are coming in warrants the success of our journal, yet we desire to place the APICULTURIST on a solid financial basis at once, and in order to do so make the following proposition and grand offer:

Every page of the APICULTURIST (except the advertisements) has been electrotyped and is preserved. As soon as possible we propose to print and bind Volume I in book form; and to render it still more attractive and valuable, we have, through the kindness of Mr. Henry Alley, arranged to include in the form of an appendix, the essay of Mr. Geo. House on the "Management of the Apiary," as also that on the "New Races," as corrected and revised by Mr. Frank Benton of Munich, Germany. Now, our proposition is this: to every person who will send us five dollars (cash) for five subscriptions, we will send a receipt for the money and credit them with the subscriptions, which may be forwarded as secured, and we will also give them a bound copy of Volume I, just as soon as out.

How many will respond by accepting the above proposition, or sending us one dollar for a yearly subscription?

Please reply *at once*. Remember that the journal is yours to sustain and care for, and that we stand as your willing and faithful representative.

Greeting you all with a "Happy New Year," we patiently await your decision.

NOTES AND QUERIES.

In sending out 10,000 copies of the APICULTURIST, it is certain that some parties will receive more than one copy. We would kindly ask those who do, to hand the extra copy to some beekeeping friend, and if possible induce him to subscribe for the Journal. We will most cheerfully and willingly send all the sample copies that you desire to use in obtaining subscriptions.

Hereafter all matter for the APICULTURIST must be in by the 20th of each month so that we may be able to issue our journal on the first instead of the middle of the month.

Mr. Henry Alley of Wenham, Mass., has just sent to our office one of his new drone traps, and after a very careful examination we feel (as a practical beekeeper) warranted in pronouncing it one of the greatest inventions ever given

to apiculture and that it ranks in value with the honey extractor and comb foundation. It gives the beekeeper entire control of the drones in his apiary and may be used for a variety of purposes.

We have just received a Christmas present from Mr. G. W. Stanley of Wyoming, New York, in shape of his new "Dollar Smoker." It is the largest dollar smoker that we know of and is made of good material. It could be improved by making the bellows somewhat larger to give a more steady puff of smoke, but it is, all things considered, a first-rate smoker for the money.

QUESTIONS AND ANSWERS.

QUESTIONS BY THE EDITOR.

1. What is the best size of brood frame for all purposes, all things considered?

2. Is one and a half inches from centre to centre, of movable frames, in the brood chamber the best distance. If not what should it be?

3. What is the proper width for section boxes, to allow the bees to build the most desirable thickness of combs?

4. Owing to the increased demand of pure beeswax and the consequent high price which *good pure* comb foundation must command, will you please give your views as to the price one can afford to pay for it, rather than dispense with it, for use in both brood frames and surplus boxes?

5. Which of the different races of bees or their crosses do you consider best, all things considered?

ANSWERS BY G. W. DEMAREE.

1. After trying all the popular sizes of frames, I find the standard "L." best for all purposes in our climate.

2. I prefer 1⅜ inches from centre to centre while the combs are being built, or foundation drawn out. But after they are completed I work them about 1½ inches from centre to centre.

3. I have never used to any extent but the two widths of sections, viz. 2 inch and 1⅞. I prefer the latter width.

4. The modern apiarist cannot dispense with foundation for "starters" by reason of any price to which the article is ever likely to attain.

He can afford to pay seventy-five cents per pound for foundation, to be used in the surplus department for combs to be kept for extracting purposes, and also for the brood department so far as to supply the places made vacant by removing brood combs. But to employ full sheets at such prices in the brood departments in which swarms are to be hived is a different matter.

As a general rule colonies, while moved by the swarming energy, will build from mere starters, about seven combs; while colonies in like condition will draw out and complete a full set of ten combs from full sheets of foundation.

Considering that these seven combs are an "actual production" they are cheaper to the apiarist than if produced from an already produced article at a lower cost than foundation ever sells.

5. I prefer pure Italians, all things considered.

Christiansburg, Ky.

ANSWERS BY J. E. POND.

1. I consider the standard L. frame the best size for brood frame, for all purposes, all things considered.

2. 1½ inches from centre to centre of movable frames in the brood chamber is in my opinion the correct distance; ordinarily, however, comb is so irregular, that frames cannot be exactly spaced, but I should not allow a greater variation than 1⅜ to 1⅝ inches.

3. I have mostly used section boxes 1⅞ to 2 inches wide. What little experience I have had with narrower sections leads me to conclude that 1½ inches would give full as good results if separators were not used, and certainly they produce handsomer comb honey. The principal argument in favor of 1⅞ to 2 inch sections is that they will work better ordinarily in a hive than other widths.

4. I think I could better afford to pay $2.00 per lb. for pure foundation than to undertake to get along without it.

5. My experience has only been with the Italians and common blacks. From the contradictory reports I have read of the other and newer (to us) races, I am inclined to "go slow" in discarding the "old reliable" and fully proved, for the new with such variable reputation.

Foxboro, Mass., Dec. 10,1883.

ANSWERS BY G. M. DOOLITTLE.

1. If for comb honey, and the surplus is to be taken only from the top, there is none better than the $17\frac{3}{8} \times 9\frac{1}{8}$ Langstroth frame. If to be used as a side storer in connection with the top section, there is none better than the $11\frac{1}{4} \times 11\frac{1}{4}$ Gallup frame. For all purposes, all things considered, I greatly prefer the Gallup.

2. Yes. A less distance is not practical unless a side opening hive is used, and a greater distance causes a loss in brood and too many bars and braces of comb to be built. Also I find $1\frac{1}{2}$ inches is the rule the bees adopt when left to themselves.

3. Two inches, unless the section is less than $4\frac{1}{4} \times 4\frac{1}{4}$ in size; then I should use $1\frac{3}{4}$ inches. A thin comb has a scrimped, stingy appearance when placed before guests, and the thicker comb is filled and completed by the bees with the least waste of time and material.

4. I think we have gone crazy over the use of comb foundation for the brood frames. Except for the purpose of securing all worker comb I would not pay over thirty cents per pound for it. I have again proven the past season that a new swarm would fill a hive with comb and brood during a time of scarcity of honey (but with plenty of pollen to be obtained), while another swarm of equal strength hived at the same time in a hive having the frames filled with foundation or empty comb, were not one whit ahead of the first as to brood or honey at the end of eighteen days. I believe comb can be built by the bees at certain times at a cost not to exceed twenty-five cents per pound. By the plan advised by some, it costs considerable money out of pocket to run an apiary, while the money should all be coming into the pocket from it (the apiary) instead of going out. For a little foundation to use when the bees would no longer build worker comb, I would pay as high as fifty cents per pound for it, if I did not have empty combs to use in place of it. For the two-pound sections I would not give ten cents per pound for foundation to use in them in time of a plentiful honey harvest, for the bees will fill a section with comb at such a time as quickly as they will add wax to the foundation and fill the section. That the bees do not draw out foundation at such times any one can satisfy himself by scraping the honey from it, when he will have the foundation the same as when placed in the section. In a time of a slow or moderate flow of honey I would consider it worth fifty cents per pound for the pound section and nucleus. I would pay seventy-five cents to $1.00 for it according to the size of section, for bees will do little or nothing at building comb in a very small section.

5. The Italians *decidedly*. That an Italian queen mated with a black or German drone will produce workers of the best type to produce comb honey I am well aware, but where shall we get such workers unless we have the Italians to start with. This talk about producing something out of nothing is well enough for the man who wishes to sell queens in such a way that he can send out anything or everything that he raises, with no fear that anyone can have any claims on him for purity; but to the honey producers of this country the Italian bee is an indispensable thing as a starting point. The Syrian I have discarded entirely and shall discard the Cyprians unless I can tone them down as to their stinging qualities. The above four races are all with which I am familiar.

Borodino, N. Y.

ANSWERS BY L. C. ROOT.

1. We use a frame 10 inches deep by 16 inches long inside measure.

With our present experience, if we were to change our frame we should make it 12 inches deep and 15 inches long inside measure.

2. It has always been a matter of much surprise to me, that, when bees fill a box hive with combs without guides, they should build the combs so irregularly, and vary the distance from centre to centre so much. In some cases they build as close as less than one inch and widen to over two inches.

After measuring many times as they are naturally built and considering the matter in all its bearings, I have to decide that 1½ inches is too far apart. I should think that 1⅜ inches would be better and 1¼ inches may not prove too close with accurate management. We will test it in the coming season and report.

3. I am satisfied that the usual width of 2 inches is too wide.

If our box honey is to be of very best quality and in the most desirable shape, it must be stored and capped as quickly as possible. A larger number of thinner combs in the same space occupied by the thicker ones, would unquestionably be completed much sooner, as the honey would evaporate more rapidly, spread over the larger surface. When separators are used 1¾ inches will be sufficiently wide. We shall use some the coming season as narrow as 1½ inches to test.

4. The question of how to secure a *real good* quality of comb foundation *every time* is one of more importance than the price we shall pay for it. We could afford to pay one dollar per pound for it, to use in full-size sheets in section boxes rather than do without it, and the heavier grades are worth in proportion for the brood frames.

5. Our experience gives decided preference to the best strains of American Italians.

ANSWERS BY GEO. W. HOUSE.

1. A frame nearly square. I prefer one about the size of the Gallup frame . 11¼ × 11¼.

2. Yes: one and one-half inches is the proper distance from centre to centre of brood frames.

3. Two inches.

4. Comb foundation made of nice pure beeswax, I consider worth at least $1.00 per pound, for use in section boxes and about 6½ or 7 feet to the pound; for brood chamber I do not believe it is profitable to use it at a cost above 50 cents a pound. Young swarms should not be hived on full frames of foundation, especially when honey is coming in freely; the bees in such cases store too much honey in the brood chamber thus crowding out the queen. For use at such times I find strips 3 inches wide preferable.

5. Of the different races in their purity I prefer the Italians, like a Syrian queen crossed with Italian drone better, and an Italian queen mated with Syrian drone best of all. Have had no experience with Carniolans. Italians crossed with hybrid drones are good, but such colonies are not fit to raise queens from; every generation will prove poorer if we breed from such colonies.

Fayetteville, N. Y.

ANSWERS BY P. H. ELWOOD.

1. The south can use a shallower frame than we at the north. Queen breeders need a smaller frame than honey producers. 10½ × 16 in. inside suits us pretty well, but if two inches were taken from the end and put upon the top, many would like it better for this cold climate.

2. Yes.

3. Two inches with separators and glass.

4. Can't think of doing without it and it is made so thin that there is no fishbone. When up to a dollar per pound it might be made a little thinner for brood frames and cut a little smaller.

5. Italian hybrids as far as tried.

Starkville, N. Y.

ANSWERS BY PROF. HASBROUCK.

1. In making arrangements to establish a new apiary next summer, I am adopting the Langstroth frame. That shows my preference.

2. I prefer no guides to space the combs, but aim to get them 1½ in. apart from foundation to foundation, but am

sure that I do not succeed with any accuracy, and I have not been able to discover that a little distance more or less than the 1½ in. makes any difference in any way.

3. I prefer 2 in. That seems about the distance naturally adopted by the bees for honeycomb, when they have their own way about it, and it takes less expense of wax to do the capping than if the combs are thinner. I am aware that combs 1½ in. thick are more apt to be built straight and regular, so that honey can be secured in them with fair success without separators; but as I would use separators under any circumstances, that would be no consideration with me.

4. Before foundation became fashionable, I used to feed cheap sugar whenever bees were not getting honey to have comb built in brood frames and for starters. My experience leads me to believe that the practice is more profitable than any use that I have made of foundation, at any price for which it has been sold in the last couple of years certainly. When wax can be sold for more than 30 cts. and foundation costs him over 40 cts., I believe the best foundation-mill a bee-keeper may have is bees, and the best thing to run it with is sugar.

5. A good deal according to the purpose for which I might keep them. If to sell, the Italians are unquestionably best, and I am not sure but what I would prefer them for extracted honey; but for comb honey, I should certainly take the larger variety of black bees or gray bees as they are sometimes called, or the Carniolans which are about the same thing. I would avoid crosses of all kinds, as their characteristics are uncertain.

Bound Brook, N. J.

CONVENTION NOTES.

THE MICHIGAN STATE CONVENTION.

As our space is limited and feeling that most of our readers prefer the majority opinion of those who take part in the discussions at our conventions rather than to read a great deal of unimportant matter to glean a few valuable ideas, we have decided to *boil down* the reports and give to our readers the cream of the discussions.

The meeting was a most excellent and profitable one to all who attended, among whom were many of our most prominent western beemasters and the convention was honored with the genial presence of the Rev. L. L. Langstroth.

The president's address and several interesting and valuable papers were presented, which we must omit at this time. We give as follows the results of the discussions as gleaned from the secretary's report so kindly forwarded to us.

1. The past season was admitted to be the poorest they had ever experienced.

2. Feeding back has but few advocates and is unprofitable.

3. Zinc or other metal or wood perforated with oblong holes not over $\frac{5}{32}$ of an inch, will prevent not only the drones but the queens from passing through, and may be used to advantage for a variety of purposes, but the zinc is preferable.

4. Both comb and extracted honey should be produced, but some preferred producing wholly extracted and others all comb honey, and the opinion on this subject was equally divided.

5. As a rule late gathered honey is not a good winter food for the bees, as it is liable to cause the dysentery.

6. Increase of bees early in the spring, when judiciously conducted is attended with great good. T. S. Pettitt said "the best stimulant in the spring is salty water placed in a trough where the bees can have access to it. Do not get the water too salty, a teaspoonful to a pail of water being enough."

7. Section honey can be produced in better shape without the use of separators. Mr. Hutchinson read an address on this subject in which he said: "that separators were not needed, if the sections were 1½ inches wide and filled with "Given" foundation; the surplus receptacles were well filled with German bees or Italians having a dash of dark German blood, and the hives kept level." The Rev. L. L. Langstroth made experiments in 1860 in order to get straight combs, he used black bees and finds by these and recent experiments with the Italians, that bees do not like separators.

8. Worker foundation is the best for section boxes.

9. One-half pound sections were not considered profitable.

10. Foul brood exists to such an extent as to threaten the welfare of apiculture, is on the increase and there is great danger of its being spread throughout the country unless active measures are taken to prevent it. This can be accomplished by establishing local associations; and by paying strict attention to the matter it may be prevented from spreading. It can be cured by the use of salicylic acid or by the starvation plan. It is better, if no peaceful measures will succeed, to see that the law which is intended to govern this matter be rigidly enforced. Mr. D. A. Jones thinks that the fumes arising from decapitated and decaying drone brood among the bees in the nucleus under which it has been placed or permitting the bees to feed the brood upon this decaying brood, will produce foul brood and Mr. Hutchinson thinks that it may come from using old, mouldy, half rotten combs.

11. Manufacturers of tobacco, cakes, cookies and packers of pork, confectioners and others who are using sweets in the manufacture of their goods may be and have been induced to use large amounts of honey instead of other sweets.

12. Honey is a good medicine for consumption and as such has proven very valuable. Basswood honey is best for this purpose.

13. Beekeeping (as regards the results of bee stings) is not a healthful vocation and too great innoculation of bee poison is injurious.

14. By using proper means and being in earnest and determined in our efforts, our agricultural associations can be induced to recognize the importance of encouraging apiarian exhibits by enlarging the premium list and constructing buildings in which the beekeepers may make their exhibits. Secretary Cutting read his report showing that the State Agricultural Society had been induced to do this. D. A. Jones stated "that 2000 2 oz. packages of honey were sold at the Toronto exhibition and these small packages opened up a market for larger sales."

H. D. Cutting, D. A. Jones, Dr. Mason, Dr. Kazarter and C. F. Muth were appointed as a committee to revise the State fair premium list and urge its adoption by the officers of the Agricultural Society.

15. Sowing the seed of honey producing plants especially the Bokhara or sweet clover, for bee pasturage is a great source of profit and will pay.

16. Bees winter best and consume less honey in the bee house or cellar properly constructed and managed, than they do on summer stands. They consume about six pounds of honey during the winter in the cellar or bee house while they consume about ten pounds when left on the summer stands. Prof. Cook said that he had "wintered one colony on three pounds of honey" but did not state how large the colony was.

17. It is a benefit to apiculture to influence persons to become beekeepers.

18. Black or fuzzy cloths are very objectionable and should not be worn in the apiary, something like smooth duck being much more preferable. A straw hat with a wide slouching rim is the best with which to avoid bee stings.

19. *Pure beeswax* is far preferable to any *cheap* substitute for the same for use in the apiary.

The convention adjourned to meet at Lansing, Mich., upon the second Wednesday in December, 1884.

THE NEW JERSEY AND EASTERN CONVENTION.

From the reports of this convention as given by the secretary, Prof. J. Hasbrouck, we learn that there was a goodly attendance of enthusiastic and prominent apiarists. The president's address and other interesting papers were read. We have gleaned the following as the results of the discussions.

1. With some, the Cyprians and Syrians have proven to be more gentle, more easy to get from the combs and better honey-gatherers than the other races, but the majority, however, seemed to prefer, for all purposes, the American Italians.

2. More attention should be paid to apiarian exhibits, and in view of this a committee was appointed to draft a list of premiums and present them to the managers of desirable agricultural societies, endeavoring to have them incorporated in the catalogues of those societies.

3. Spring management of bees is the most important part of beekeeping

and our beehives and system of management should be judiciously adapted to the wants of the bees during this time.

4. Early spreading of the brood in the spring, when judiciously managed and the brood chamber kept warm by giving the bees just the amount of brood room that they need and no more, is productive of much good. At this point Mr. L. C. Root referred to the great importance of using a correct size of brood frame stating that there was a great disadvantage in the long, shallow frame and that the frame must allow the bees to arrange the brood within a spherical cluster.

5. A circulation of air around or between the combs is detrimental to the bees and should be prevented by using tight-fitting cloth covers and division boards.

6. Honey should be kept in combs to feed to the bees in the spring. When feeding in this way break the cappings and place the comb containing honey between frames of brood.

7. It does not pay to feed back honey for surplus.

8. Glucose or grape sugar should not be used as a food for bees or in any other way by beekeepers.

9. Giving every colony a good prolific queen kills natural swarming.

10. Bees gather honey and do not make it; hence any sweet fed to the bees is placed unchanged into the combs.

11. Honey just gathered contains 70 per cent of water and if it is evaporated artificially the honey is just the same as when evaporated by the bees in the hives. Mr. L. C. Root spoke of the experiments that Mr. Quinby and he had tried, to test this matter; stating that when Mr. Quinby first learned of centrifugal force being applied to honey combs, he improvised an extractor from the parts of a fanning mill and began experimenting with extracting honey both before and after it had been sealed by the bees, which resulted in proving that honey evaporated by artificial heat was just the same as that evaporated in the hive by the bees. Mr. Root also described his honey evaporator of which we hope soon to have an engraving made for the APICULTURIST.

12. The desire for natural swarming can be easily controlled where the honey extractor is used.

13. No system of practice in taking box honey will prevent swarming.

14. Mrs. Thomas of Philadelphia, Pa., never puts on surplus boxes until the hives are filled with honey.

15. Colonies should not be examined in cold or disagreeable weather, as disturbing the bees at such times often causes the loss of queens.

16. When bees are not gathering honey rapidly they should not be opened in the middle of the day, as robbers are about and may cause trouble, but during such times the bees should be handled early in the morning as there are few mornings when the bees cannot find honey enough to keep them busy while the beekeeper is doing what he cannot do in the evenings.

17. All necessary handling of the bees must be done with the utmost rapidity and with just as little disturbance of the arrangements of the bees as possible.

18. It pays well to transfer bees from box hives if for no other reason than to get rid of the parasites and other injurious insects that secrete themselves in the cracks of the old hives.

19. No harm comes to bees from the judicious use of the honey extractor.

20. The usual methods of introducing queens were discussed and as usual there was a great diversity of opinion; but they admitted that the bees must realize the loss of the mother bee and be in some way or other prepared to receive the new queen which must be introduced quietly.

21. Bees winter well in single walled hives on summer stands when a larger box is placed around the hives and the space filled with leaves. After usual business routine the Convention adjourned to meet again on the second Wednesday and Thursday of March next.

THE NORTHEASTERN CONVENTION.

We take great pleasure in calling the attention of our readers to the following notice of the Northeastern Beekeepers' convention as given by the secretary, Mr. House.

As we have been an active member of that association for years, we can truthfully say that when it speaks it speaks for the interest of the beekeepers.

Its members, the pupils of the honored and lamented Quinby imbued with his spirit and following in his footsteps, carry out the measures which he so desired to complete, but tenderly intrusted to others, when he fell asleep.

Questions of great importance will be brought up for consideration and we urge all who can to attend the meeting. We hope to be present and Mr. Alley of Wenham, Mass., expects to accompany us. Let us have the largest attendance that ever assembled at one of these conventions and great good will come to apiculturists as the result.

The fifteenth annual convention of the Northeastern Beekeepers' Association will be held in the City Hall in the city of Syracuse, N. Y., on the 22nd, 23rd, and 24th of January, 1884.

This will be the largest and most interesting convention of beekeepers ever held in America. Many of the most scientific apiarists in the country will take part in the discussions.

The program is completed and comprises all the important topics of the day.

The question box will be opened each day and the questions discussed. All are invited to send in questions.

Implements and articles for exhibition will be received and properly arranged. Such articles should be sent to the secretary with transportation charges paid.

Five hundred beekeepers are expected to be in attendance. It will pay any beekeeper to go one thousand miles to listen to the discussions.

Reduced rates of board at hotels have been secured. All are invited.

GEO. W. HOUSE, *Sec'y.*

W. E. CLARK, *Pres.*

We have just received the program of the Northeastern Beekeepers' Association convention and have condensed it as follows:

ADDRESSES TO BE DELIVERED.

The President's annual address; Foul Brood,—Prof. A. J. Cook, Lansing, Mich.; How to manage the Apiary for Comb Honey,—Dr. C. C. Miller, Marengo, Ill.; Comb Foundation: the best for use in brood chambers and surplus boxes,—C. P. Dadant, Hamilton, Ill.; The different races of bees and their crosses,—The coming bee for business,—D. A. Jones, Beeton, Ontario; Introducing Queens, both laying and virgin,—Dr. J. P. H. Brown, Augusta, Ga.; Management of the Apiary to secure the most extracted honey,—L. C. Root, Mohawk, N. Y.; What percentage of increase is preferable in securing the greatest amount of comb honey: how secured or controlled?—E. J. Oatman, Dundee, Ill.; Progress in Apiculture: the past, present and the future,—Rev. L. L. Langstroth, Oxford, Ohio; Our Present Situation,—S. M. Locke, Salem, Mass.; Rearing Queens,—Geo. W. House, Fayetteville, N. Y.; Wintering Bees: in the cellar and on the stands,—C. G. Dickinson, South Oxford, N. Y.

TOPICS TO BE DISCUSSED BY THE CONVENTION.

Our Bee Literature; Marketing our products; How can we supply the increasing demand for wax? Is it desirable for apiarists to adopt a standard size of frame? Dysentery,—its cause and prevention; Spring Dwindling,—cause and its prevention; What is the best feed, and how should it be fed? Shall we plant for honey? What are the best honey-producing plants, and how are they cultivated? Is pollen detrimental to wintering bees successfully? Enemies of Apiculture; New discoveries and improvements.

The above, together with the usual business routine, the question and answer discussions and other interesting features assure us that it will be the most interesting and important convention ever held. Do not fail to attend. The following are the hotel rates:

Board at Candee House, $1.25 per day; at Empire House or Hotel Burns, $2.00 per day. Lodgings at most of the Hotels, 50 cents. First-class meals in fine style at the popular restaurant of C. H. Shattuck. Prices reasonable.

We have just received the program of the Eastern New York Beekeepers' Union Convention, but as this number will be out too late to reach the beekeepers in time, we omit it.

Will every beekeeper in New England who wishes to see a New England beekeepers' association organized, and who will attend a meeting appointed for such a purpose, kindly send his address *at once* to the "Apiculturist" office.

SOUTH EASTERN MICH. BEEKEEPERS' ASSOCIATION.

The annual meeting of this Association will be held at Adrian, in Plymouth church chapel, Jan. 23, 1884.

H. D. CUTTING, *Pres't.*
H. C. MARKHAM, *Sec'y.*

LETTER BOX.

6054 *Vine St., Philadelphia, Pa.*

MY DEAR SIR:

I would like to call the attention of the thousands of "bee raising" readers of your valuable journal, the "American Apiculturist," to another and somewhat less known and understood industry, "Silk Culture." This latter named industry is very easily learned. It needs none but the women and girls of families to carry it on. The work is light, pleasant, healthy, intensely interesting, and profitable. The cost of starting is very light, the principal expense being for the eggs or seed. Fixtures are easily and cheaply made at home, and the whole time of raising a crop of silk, should not exceed six weeks. It should be remembered that I do not advocate this as a means of "making a living," for who could expect this from the short time it takes to accomplish the results, but I do claim, that even the children of the families having access to the food, can materially add to their incomes by engaging in this fascinating work. One lady correspondent of mine, somewhat celebrated for the honey she raises, not only raises the silkworms too, but reels the silk from her cocoons, dyes it, and makes it into sewing silk. I have some samples she sent me, and "it is good enough for any one to use." Another correspondent, a gentleman this time, who is also noted for the honey he raises, sent me some cocoons produced by his "silk worms" which are some of the finest specimens I have ever seen. I reeled some of his silk for him and it is very fine and beautiful. This gentleman says, "our climate is admirably adapted to the growth, both of the trees and worms, and with an abundance of cheap labor, I do not see why we should not succeed." In another letter he says, speaking of his silk raising, "it is a fascinating study and has the advantage of my specialty, honey and bee-culture, in that *the silk worm won't bite.*" Now what he says is true of almost every state in the Union. The soil and climate, temperature, etc., in nearly all parts of the country are peculiarly adapted to the raising of both the silkworm and its food, while the "mulberry" and the "Osage orange" abound all over the land. I would call the attention of bee-raisers "everywhere" to this new industry, and will be pleased to give any required information on the subject. All communications addressed to me, "with stamp enclosed for reply," will be promptly answered, and I will be most happy to assist the "mothers and daughters," whose attention may be called to this, in gaining an insight into this new and valuable work.

Believing Mr. Editor, that you too can say something to your many friends, in favor of this new industry, and of combining it profitably with your own favorite work of bee-culture, I send you this, trusting it may interest some of them.

Very respectfully your friend,

NELLIE LINCOLN ROSSITER,
Practical Silk Culturist.

Miss Rossiter has kindly sent us a little box of the silk and cocoons and they far surpass our anticipation, they are so beautiful, and we take pleasure in bringing to the notice of our readers this new industry which perhaps

may be advantageously added to bee-keeping, and prove an additional means of interesting the young and filling their minds with that which will not only prove useful to them but also lead them to appreciate their Creator's power and wisdom as exhibited in His handiwork and give them less time to read the pernicious literature of the day. We certainly wish our friend every success in her undertaking. The valuable work on "Silk and the Silk worm" which we have received is certainly very interesting and instructive and we can fully recommend it.

Dear Sir:— We send you our report for 1883 as follows: after filling our orders for bees we had to commence the season with 260 colonies all told (strong and weak ones). By drawing frames of hatching brood from the stronger and giving to the lighter colonies, we had them all in about an an equal condition by June first. We had an abundance of white clover bloom; but owing to the cold and rainy weather during the entire month of June, but little honey was gathered and none at all stored in the sections; in fact most of the colonies were in an almost starving condition when basswood bloom appeared. At this time we had a change of weather for the better and we were then confident that we should yet have a good yield of surplus honey stored in sections.

Now for the result. At one apiary of 80 colonies, spring count, we made 105 new swarms and obtained 9000 lbs. comb honey. At another apiary of 120 colonies in the spring we had 118 new swarms and 10500 lbs. of comb honey. At the home apiary of 60 colonies May first, forty-six new swarms and 3500 lbs. comb honey. A grand total of 269 new swarms and 23000 lbs. of honey all stored in the two-pound sections. We had no dark honey; the season being entirely cut off for storing surplus early in August. To secure that amount of honey in that space of time means long days of hard labor while the honey flow continues. Our success is largely attributed to the convenient advantages employed and used in all our manipulations, viz.: manner of making new colonies, and simplicity of surplus arrangement which admits of quick and easy handling of sections. (I claim to have the simplest and best honey rack in use.) After another season's work I am convinced that reversible frames will come into general use as soon as their simplicity and easy manipulation are understood, and the advantages derived from their use by those working their apiaries for comb-honey. For extracted honey they are no better than others.

After another season's experience, my new method of rearing queens has proved a perfect success. It is by far the simplest and easiest way of rearing first-class queens that I have ever seen or heard of. I may give you this method for some future number of the "APICULTURIST." The bees are in fine shape for wintering, the most of them are packed on their summer stands. Have a part in the cellar. The thermometer thus far marks 52°; shall put the temperature up to 60 or more degrees later in the winter. I will report success. I believe the temperature in cellars should be much higher than has been advocated.

GEO. W, HOUSE.

Fayetteville, N. Y.

NOTICE.

Over one hundred years ago, J. L. Christ, the author of the German work which we are having translated for the APICULTURIST, says, "one ought to pay more attention to this branch of agriculture" and yet we in this enlightened age of the world are just recognizing the fact that apiculture is properly a branch of agriculture, and one upon which agriculture is dependent for its success and which should be taught as one of the necessary branches of study in a thoroughly agricultural education. Where are our apiarists? We hope and trust that our prominent active apiarists will become members of our agricultural clubs, and urge the necessity of recognizing apiculture as a sister industry. There is a great deal of good work to be done and who will do it.

The American Apiculturist.

A Journal deboted to Scientific and Practical Beekeeping.

ENTERED AT THE POST-OFFICE, SALEM, AS SECOND-CLASS MATTER.

Published Monthly. S. M. LOCKE, Publisher & Prop'r.

VOL. II. SALEM, MASS., FEBRUARY 1, 1884. No. 2.

EDITORIAL.

WE had hoped that with the beginning of the New Year, we might be able to change our course and issue the APICULTURIST on the first of the month but how little we know "what a day may bring forth." The action of the N. E. B. A. making the APICULTURIST its official organ, giving to us the reports to publish entire, was wholly unexpected and has entirely disarranged our plans for this month. This, together with the fact that we were obliged to spend one week more in New York state than we intended, will be sufficient excuse for uniting the February and March numbers making a double number, and the consequent delay in sending it out. We trust, however, that the value of the matter published this month will more than recompense our readers for the loss, and that hereafter we shall be able to issue the Journal promptly on the first of the month.

We are aware that the proceedings of this convention will be severely criticised, and it may be well for us to review them in order that there may be less need of mistaking the motives.

We have just received a letter from Mr. Segelken regarding the matter of adulteration of honey, and as we believe in *equal rights* and justice it may be well to notice this matter somewhat.

The action of the convention in regard to the adulteration of honey, as a whole, was devoid of any feeling of animosity or individual interest. It cannot be denied that beekeeping has suffered much at the hands of those dealers who adulterate our honey, and to-day in New England everybody is afraid of extracted honey on that account. Now we do not deny the right of any firm or business house to sell glucose and honey or in fact any adulterant, but we do object to the injury that has come to apiculture and the honey market from such cause and when any firm openly acknowledges that they do adulterate honey, every beekeeper in this country should rise in defence of his interest and do his best to crush out the evil.

Nor would we dispute that *pure corn* syrup (or glucose) is wholesome, but we ask, who is going to know that those who *adulterate* use the *pure corn* syrup (or glucose). I know that in this city while one of the confectioners uses *pure glucose* yet many use the poorer grades which create disease and ruin the system. Now the question is just this, Shall we as beekeepers *submit* to the *adulteration* of honey? The convention has said *no* and we trust that every beekeeper will stand by that decision. We have come to the time when that matter is to be *tested*. I hope that those who have the interest of apiculture at heart will study this matter carefully ere they attempt to tell the public that *glucose is wholesome;* the result to apiculture will be direful, and the beekeepers have already suffered enough at the hands of those whose main object was to sell their goods regardless of the results.

The other day I received a circular, sent out by Mrs. Lizzie Cotton in which she states that the food which she describes "when fed to the bees cannot be detected by the majority from *pure honey.*" Shall we as beekeepers uphold or allow to pass unnoticed such matters as these? And shall we hesitate in censuring a firm that adulterates honey because they have a large capital to back them and are prominent? We leave this matter with you and hope that the more thoughtful, at least, will judge us aright.

Another matter which will probably be questioned is the discussion of bee literature, and in order that those who may choose to differ with the actions of the convention and attribute them to *personal animosity*, "coöperate interests," or perhaps to the individual efforts of a few *discontented* ones, we would state that the time has come when the more thoughtful and prominent apiarists from every section of our country recognize the necessity of a reform in our bee literature, and the

action of this convention was not the "work of a discontented few," but the will of the majority of a convention numbering over 160 members, and at which convention there were present over 350 beekeepers.

While it was admitted that every supply dealer had a right to publish a journal in which he might advertise his supplies, yet the majority claimed a right to support a journal which is independent of any connection with such a business, and free to work for their interests, and all the discussions upon this matter were conducted in a kindly and manly spirit.

We would thank the members of the North Eastern Beekeepers' Association by showing in such unmistakable a manner that they will stand by every effort made to benefit apiculture and advance its interests, and in return we shall, as in the past, try to do our own duty faithfully and well. Were we to quote from the numerous letters which come to us by every mail, and from every portion of the country, you would not wonder when we state that we have been almost astounded at the hearty response of the beekeepers that rally to our support.

We are well aware that if the "Apiculturist" lives, it must be because the beekeepers support it by subscription, and we take great pleasure in stating that the future success of the Apiculturist is no longer a question.

We stated in our last number that we proposed to stand by right and justice when ever called to speak, and this impartially and unflinchingly.

As we have stated before, the journal is yours, and we should be pleased to hear from all those who have matters of interest to impart to others, or in regard to which they wish information.

We should be pleased to furnish all the sample copies that may be called for to use in obtaining subscriptions, and yet we must ask you to be patient if there is a delay in sending them, as the calls are coming in so fast, that we are behindhand with our work.

We have prepared a neat card advertising the journal, which if you wish, we will send you, to hang in some conspicuous place.

We intend as soon as possible to publish the journal promptly on the first of the month, and are doing our best to accomplish this, but must beg of you to be patient with us, as you little know how much work we have been obliged to do.

We can say sincerely and from the inmost depths of our heart, God bless you for the assurance that you have given us.

PROCEEDINGS OF THE NORTH-EASTERN BEEKEEPERS' ASSOCIATION.

FIRST DAY.

The fifteenth annual convention of the Northeastern Beekeepers' Association was held in the City Hall at Syracuse, N. Y., Jan. 22, 23 and 24, 1884.

The convention was called to order at 1 P. M., Pres. Clark in the chair and Sec. Geo. W. House at his desk. After the calling of the roll, the secretary read the minutes of the last meeting, which were adopted and placed on file.

An address on Foul Brood by Prof. A. J. Cook of Lansing, Mich., was read as follows:

Mr. President and Gentlemen of the N. E. B. A.:—

I cannot express to you my regret at not being able to accept the kind invitation of your worthy secretary and be personally present at your gathering. It has long been my earnest desire to meet with the members of your organization. I have long recognized the individual experiences of your members as among the best of the country. We have all come to regard your discussions as among the most valuable of any that we get. I should the more deeply regret my inability to meet with you, did I not expect to meet the most if not all of you at the North American Association at Rochester next year. We are looking forward to that meeting as one of the great occasions of the near future. The local interest will be worked up by one of the strongest associations of the country. I trust that a good strong program will show us what to expect, and will give tone and direction to the discussions. Good as mere discussion is, it cannot equal the mixed diet of essays and discussions. The course of all deliberative bodies shows this, and the experience of our beekeeping meetings of the recent past also shows the same thing. Your Association has held to the good old way, and I hope that the N. A. A. will return to it another year. Method is a prime element of success in beekeeping, and is equally important in discussion and investigation such as transpire at our conventions. What is so helpful in securing method,

as a series of concise, well-considered and ably-presented essays?

But lest I be accused of forgetting my theme I will proceed at once to discuss

Foul Brood.

I think the matter of wintering gives very little anxiety now to our best bee-keepers, so we may say that the great obstacle to success in our business at present is the terrible disease foul brood. This is becoming alarmingly prevalent in some sections of our country, and nowhere more so than in my own state of Michigan.

In this condition one of two courses is open for our adoption: we can either keep still, and allow it to spread, to our own ruin and the damage of every apiarist in our neighborhood, or we can agitate the matter and take such steps as will bring relief. Our horticultural friends in case of a similar disease of the peach, the yellows, tried in some sections, the former method, at an enormous loss to themselves and others. I need not say to those here present, that an opposite course is urged upon us by both morality and self-interest.

A beekeeper of the North carried bees from Illinois last season, to the state of Louisiana. He finds that he has foul brood, and asks me to say nothing about it. He rather should wish it to be known and should at once try every means to stamp it out, and thus conserve his own interest, and should be even more active to insure his neighbors against the evil. To inoculate the bees in a community, especially if there are wild bees in the place, is to let loose a terrible, and most likely a lasting plague. The germs of this dread malady will live for years in a deserted hive or bee-tree, and so long as there is honey present to lure the bees so long a threatening evil is in the place. Our friend Muth has proved the dangers of this overhanging danger; as he has destroyed the fungoid growths several times only to have them return, as the germs would be again thrust upon him from some nest of the disease in the vicinity. So we see that the interest of others even more than our own, should make us alive to this subject and its importance.

Nature of Foul Brood.

Foul brood, like all kinds of rot or putrefaction, as first shown by Dr. Preuss and Pastor Schönfield, is the result of the growth of certain microscopic plants, which multiply with astonishing rapidity. When magnified 1200 or 1500 times these bacilli in their nutritive stage look like the links of a chain. These links often touch at the end, when the bacilli look still more chain-like, as shown in fig. 1. As the result of the development of these minute fungi, the tender brood on which they depend for their nourishment is

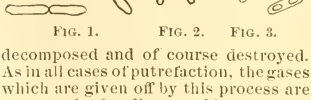

Fig. 1. Fig. 2. Fig. 3.

decomposed and of course destroyed. As in all cases of putrefaction, the gases which are given off by this process are possessed of a disagreeable and even nauseating odor. These fungi reproduce through the aid of minute germs, which are termed spores, and are the seeds of these minute organisms. The spores (fig. 2) are rounded objects, very minute, and during the reproductive stage can be seen by aid of a high power microscope within the bacilli (fig. 3). A strange and very unwelcome peculiarity of these germs is that the most severe cold does not destroy them but only holds them in abeyance, ready to spring forth at the first return of warmth, providing that they have any substance on which to grow. Heat on the other hand, if great enough, will destroy both the fungoid growths and the germs. Usually a boiling temperature, 212°, will accomplish this result; though with some species it requires boiling for some time, and rarely a higher temperature than 212.° Prof. Forbes has found that he can inoculate common beef broth by adding the spores, and thus reproduce the bacilli.

Foul Brood Described.

When the brood (the adult bees are not attacked by this fungus) becomes diseased, the first indication the beekeeper has is the nauseating fumes which are plainly detected if he puts his nose at the entrance of the hive. This odor is the same in kind that arises from any putrescent matter, though I fancy it has a character of its own. As I have received this diseased brood by mail, I have frequently detected the odor before I would open the package and have often remarked to members of my family that I had another sample of foul brood. The next indication is the weakening of the colony, as we know that in the breeding season, if there are no bees reared, there will be

a rapid diminution. The cap to the cells containing the diseased brood will be concave, instead of convex, as it is in healthy brood. A minute hole is often found through the centre of the cap, as if the bees had attempted to drag out the dead brood, and had sickened of the undertaking at the first whiff of the foul gas. In this disease the brood usually matures so far as to rise from the bottom of the cell and be capped over. The nymph or pupa state is not attained, but the decaying larva becomes a brown stringy mass, which falls to the lower side of the cell, becomes wrinkled and finally dries up in the bottom of the cell. This dried black mass is composed of the spores, already referred to as the fatal germs, which if spread to other colonies will continue the fell work of destruction. We need not then confound this with a less harmful disease, where the larvæ are not capped, but die earlier, and where the dried mass at the bottom of the cell is gray, not black. Again if the brood is watery, and not thick and viscid when drawn out with a pin, then it is not this malignant kind of foul brood. Surely if the above is carefully studied no one need fail in correctly diagnosing this terrible plague. The stench, the sunken cap, the minute hole in the cap not always present, the brown ropy mass, the decaying brood, and the black dried remains at the bottom of the cell, — each and all will tell the alarming news.

HOW THE CONTAGION IS SPREAD.

The minute spores lodge in the honey, form the black mass on the floors of such cells as have contained the diseased brood, and adhere to the combs and sides of the hives. There is good reason to believe that they do not adhere to the bees; but may and likely will be in the honey that the bees may convey from a diseased colony or a hive that is now the tomb of bees which are the victims of this fearful scourge. If then, combs containing honey or brood or bearing the spores, are taken from a diseased colony and given to a healthy one the latter will almost surely suffer an attack. Robber bees visiting a diseased colony will bear to their own hive the fatal germs. What adds importance to this last fact is the greater danger which always threatens weak colonies from robber bees. In like manner, if bees from a healthy colony visit a tree or hive from which the bees have died even a long time ago and bear away to their own hives the noxious germs, they have as surely innoculated their own brood, to which they have fed these seeds of disease. We see then how dangerous a thing it is once to introduce this fell malady into a locality and how eager we should all be to stamp it out at its first appearance. For one knowingly to allow it to remain in his apiary, and endanger the bees of his neighbor is to assume a fearful responsibility, which it is to be hoped would not permit such an one to rest day or night, till he had performed fruits meet for repentance. Some apiarists think that malignant foul brood may arise by allowing brood to die in quantity in an inhabited hive. The fact that foul brood germs will develop in beef juice proves that it would likely vegetate in chilled brood. But it can only grow in dead brood from the presence of the germs, and were they in the atmosphere ever present, then we should be constantly having the disease. So the above theory of origin is not probably correct. To arise, the germs must come to the hive. I have repeatedly left drone brood in large masses in hives,—till decomposition set in, but there was never any sign of the production of this terrible disease.

METHODS OF CURE.

Those who have tried to cure and have failed and no less some that have succeeded in curing the disease, are free to say that the politic thing to do, in the case disease makes its appearance, is to burn all diseased colonies, hives, combs, honey and all, *instanter*. This they say is the safe way, and in the end will generally prove the cheapest. This should be done in such a way that no bee could escape, and spread the malady. Some recommend burying instead of burning. If this is done, care should be taken to bury so deep that the germs could never be disinterred.

I think that Professor Kolbe of Leipsic, Germany, first announced that the great fungicide salicylic acid, while it was death to the germs and the fungi, was entirely harmless to the bees. This acid while readily soluble in alcohol, is only partially so in water. A solution of this acid, one part in ten of alcohol is made, and corked up to be used at pleasure. When we wish to spray the bees, thirty parts of water to one of the solution are used, and the diseased brood thoroughly sprayed once every week till the colony is cured. To destroy the germs in a hive the mix-

ture may be much stronger. In this case, where the hive is empty, carbolic acid is recommended, as efficient, and much cheaper. It is also well to feed to these bees and indeed all of the bees near by, a little of the solution, or better the borax solution, in sweetened water.

It is a well-known fact to the chemist, that although many substances are insoluble in water, they are made readily soluble by adding a second substance. Our good friend Muth has utilized this fact as follows: he adds eight grains of salicylic acid, eight of borax, to one ounce of water with which the bees are to be sprayed as before. Mr. Muth now suggests an improvement: he makes the solution twice as strong, and after drumming all the bees out into a new hive filled with foundation, he feeds them syrup or honey, to which he adds one ounce of the solution to each quart of the syrup. He then extracts the tainted honey, melts the combs, and either burns the hive or else scalds it in boiling water for some minutes. Of course the extractor must be well scalded and the honey boiled, after the extracting is done. There is no doubt but that this remedy is sure and reliable, as it is irrefragably proved. The only question is will it pay in view of the labor, and the danger that a little carelessness will cause the loss of a "mickle" in the attempt to save a little.

Mr. Jones prefers the "fasting method" of cure. The bees are drummed out into an empty box so thoroughly, that they are full of honey, and then in some cellar or cool place, left for some days, till some of them begin to fall from the cluster, when they are hived in a fresh hive on foundation or uninnoculated combs. The hives, comb and honey are treated as before. That this method is also efficient there can be no question. The fact that this method has succeeded in the hands of several proves that the germs are not lodged on the bees but in the honey. Mr. Muth kills the germs by feeding salicylic acid; Mr. Jones causes the bees to fast till the honey and germs are all gone. The question may wisely be considered in this case as in the other. Will it, in view of the labor and danger, pay to attempt a cure. In case I should have occasion to treat this plague, I should, I think, combine the two operations. In addition to the fast, I would give the medicated syrup to the bees.

OPPORTUNE SUGGESTIONS.

In buying bees or queens we cannot be too careful to avoid localities where this disease exists. If we buy of intelligent honest apiarists, of course we should not get the disease as the man of whom we purchase would know that he had not the plague in his apiary; or, if such a man had it he could not be induced to sell any colonies. Again, if we know the scourge to be near us so that we are in danger of becoming victims, it may be wise to give our bees access to salicylic acid, either in water, or syrup, so that the bees as they take the germs into the stomach will have the fungicide there to destroy them. M. E. Bertrand, the able editor of Nyon, Switzerland, writes me that this prevention has been practised with success in Europe.

Mr. President, long as this paper is, I am well aware that the subject has not been exhausted, and I shall watch with much interest the discussion, as we beekeepers of Michigan are eagerly looking for additional light on this question, in which we are greatly interested.

Hoping that your meeting may be rich to repletion in the wise utterances and kindly feeling that shall abound,

I am very truly,

A. J. Cook.

The question of foul brood was then opened for discussion.

L. C. Root.—This subject is all important. With the many hinderances to beekeeping at the present day it would be very disastrous were this dread malady to return in a malignant form. With the benefits we have in the recorded experiences of those who have tested the matter fully during the past, I feel warranted in saying that foul brood may be disposed of in a more economical way than to burn or bury the colonies which are affected with it. It is not fair for us to give the hard earned views of those of the past as though they were the results of our own later experiences.

If we have ideas that are new in regard to it, they are earnestly called for; we cannot study it too closely. The thanks of this association are due Prof. Cook for the fearless manner in which he has treated this subject, and I desire to present the following resolution:

Resolved: That this association express its appreciation of Prof. Cook's paper on foul brood and for the honorable position he has taken in giving to the public through this association the exact condition in regard to it in his state, that they may be on their guard and so far as possible avoid the spreading of it.

This resolution was unanimously adopted.

R. Bacon.—Many years ago my apiary was infected with this disease and in a few months I lost about sixty colonies of bees. I first discovered it by noticing a peculiar and noxious odor as I passed through the apiary, and not being acquainted with foul brood could not account for it. It is fully as disastrous in the apiary as is small pox to the human family. If I found a colony thus affected I would destroy it by burning it as quickly as possible and would never try to fight it again. I know that foul brood exists in Michigan and it is a question in my mind whether it is best to have bees or queens sent out from there to this place. I believe that we had better look into this matter and purchase only of those parties whom we know to be clear from it.

Mr. Dickinson.—I am glad to know that our friend Bacon feels so secure against foul brood. While this is so, yet I am afraid that there are others who do not feel so secure and if it would not be out of order I would like to present some resolutions regarding the extermination of foul brood in this state.

It is already known that the state of Michigan has passed a law making it a misdemeanor for any one to keep a stock of bees containing foul brood, and I think that such a law should be enacted and enforced in this state. Many years ago foul brood was alarmingly prevalent in the state of New York, and if active measures are not taken to protect ourselves against it and to suppress it great harm will come to beekeeping here.

I would move that a committee of three be appointed by the chair to draft a petition to be presented to the legislature for enactment which shall protect us against this dread disease.

This motion was carried and the chair appointed as such committee Messrs. C. G. Dickinson, L. C. Root, and C. R. Isham. Mr. Dickinson also offered the following resolutions which were adopted.

Whereas, The contagious disease among bees, known as "Foul Brood," is becoming alarmingly prevalent in several counties of the State of New York:

And, *Whereas*, if such disease be allowed to develop without the restraint of law, danger of ultimate ruin to the apicultural industry is apparent

Be it Resolved, by the N. E. B. Association, in convention assembled, that we will act unitedly in any lawful manner to suppress the same.

Resolved, that without the passage of a special statute for our protection, we are powerless, and wholly unable to prevent the spread of this destructive disease, throughout the entire state.

Resolved, that for the purpose of drafting a suitable bill, and an accompanying petition, to be presented to the state legislature, now in session, a committee of three be appointed, with instructions to report before the final adjournment of this convention.

Resolved, that the above named petition, when approved and adopted, shall receive the signature of each member of this association.

Resolved, that the Secretary be and is hereby instructed, to procure (within fifteen days from the date hereof) *Five Hundred* printed copies of the bill and accompanying petition for the suppression of Foul Brood, with the names of the members of the convention attached, and to mail a copy to each member of the *State Assembly*, now in session.

Resolved, that a committee be appointed by the Secretary to confer with Members of the Legislature, relative to the immediate passage of the *Bill* for the suppression of Foul Brood, and that such committee consist of a member from each *Assembly district*, in the *State* of *New York*, that is represented by membership in this convention.

Syracuse, N. Y., Jan. 23, 1884.

Silas M. Locke.—I have seen foul brood that was sent out by a western party of whom a person purchased some bees and I have been warned not to make it public. I think that it is time that some active measures are taken to protect ourselves against it and am glad that this association has attended to this matter.

DR. MARKS.—In 1865–66 or 67, my bees, which were in box hives, were affected with foul brood and I did not know how to treat it. I came to this country in the winter or spring of 1868. I sold my bees to a neighbor and believe that he has not *any* foul brood now.

C. S. DICKINSON.—There is no use in trying to conceal this matter the better way is to own it. Now I have two apiaries and foul brood exists in one of them. The other is free from it and I intend to keep it so. If you do not choose to purchase bees or queens of me you need not do so. I am anxious to clear my apiaries of this scourge. I know of two or three instances in Broome county where parties acknowledged that their bees had foul brood and it may perhaps exist in other localities.

C. R. ISHAM.—There is no foul brood in Wyoming county.

MR. BACON.—I do not think that Mr. Dickinson's bees have the genuine foul brood. I wish that if any parties here present have this disease in their apiaries, they would say so.

DR. MARKS.—I do not think that Mr. Dickinson has *malignant* foul brood in his apiary. In 1869 I lived in Brewerton and kept bees They were troubled with the disease described by Mr. Dickinson but it did not prove to be foul brood. When I lived in Oswego county I had bees in the same condition. Mr. Bacon in speaking of this disease said that were a stock of his bees affected with it he would destroy both the hives and the bees. Now there may be a kind of foul brood which is not of a malignant character, and if we were to destroy all such *at once* there would be a needless loss.

MR. STARK.—Some twenty-five years ago my bees were troubled with what I called bee rot and I did not know how to get rid of it, nor that the brood would rot. I drove the bees out into new hives and they built new combs but the brood would still rot and I lost thirty-five to forty colonies. It lasted four years and if it was not foul brood it was foul enough for me. A neighbor of mine who lived about three-fourths of a mile from me had two colonies of bees which I thought were free from it and I bought them but they were affected with it. I never was troubled with anything of this kind before and suffered until I lost from 120 to 130 colonies when I destroyed my hives and constructed new ones and have never had foul brood since.

Mr. Dickinson then moved that the chair be empowered to appoint a reading clerk which motion was passed and the chair appointed Mr. Dickinson as such clerk.

The following essay was then read.

HOW TO MANAGE THE APIARY FOR COMB HONEY.

BY DR. C. C. MILLER.

I AM by no means competent to answer in full how to manage the apiary for comb honey, but appreciating the compliment of having such a subject assigned me by the N. E. B. A., I shall touch upon some of the points connected with the subject.

At the outset I am confronted by an item about which I must confess ignorance: — the best race of bees for comb honey. It is claimed for the blacks that they make the whitest comb and the Syrians have been accused of making the most watery looking comb honey. I have noticed quite a difference in colonies as to filling the honey out to the capping so as to give it a watery appearance, some colonies making very white comb, and possibly some particular strain or cross might be found that should excel in this respect. It has been claimed that blacks enter boxes or sections most readily, but I have never found any difficulty in this respect with Italians or hybrids.

With regard to hives, I think I should want a shallower hive for comb honey than for extracted but I have used only the Langstroth hive and have had a very limited experience in extracting. A wider knowledge might change my views. I know that in the height of the storing season my bees fill a Langstroth frame to the top bar with brood, so I should hardly want anything shallower. For comb honey it is not best to have more than seven or eight Langstroth frames in the brood nest. My hives were made for ten frames and I close down to seven or eight by means of a division board. If I were commencing again I might have the hives made just large enough for the seven or eight frames as being less cumbersome, but there are some advantages in the extra space contained in the larger hive. It makes a nice

place to put in a frame of honey or syrup, or a frame of partly filled sections, to be fed out. It gives room for a frame of sections to be put in for the bees to commence work storing, before it would be desirable to put on supers.

The matter of surplus receptacles or sections has been pretty thoroughly discussed, and each one will decide for himself what is best for his own market. Of the various supers in use I have the best acquaintance with that for the wide frame containing eight one lb. sections. The super is of the same size as the hive and holds seven wide frames or fifty-six sections. These seven wide frames occupy 14 inches in width and as the inside width of the super is 15⅝ inches there should be left a space of 1⅛ inches, which in actual practice is less. Separators are on these frames and the seven are crowded together in the super, and a dummy made of common inch boards resawed placed up against them. They are not wedged up together in any way, and the vacant space makes it easy to remove them. I have seen supers with a vacant space of a fourth or half inch. I do not think I could well use them. An objection to these supers is their size. They are heavy to handle, and after one is about filled it is often undesirable to give so much room as to put on another with a capacity of fifty-six lbs. Then again the lower tier of sections is not generally finished at the same time as that in the upper part of the frame. I used some supers the past season of half the height, each wide frame holding four one pound sections and think them an improvement. The top bars of the frames have a space of one-fourth inch between them (perhaps ⅜ would be better) which allows tiering up by putting an empty super under a partially filled one.

The question of separators is being somewhat agitated now, with a tendency to dispense with their use if practicable. At the last Northwestern convention it was found that a large portion of the members used no separators. The surprise becomes less when it is considered that probably a very small number of those who used no separators shipped to distant markets. So long as I supplied only my home market I had no use for separators.

The past season I used some 200 supers of James Heddon's style in which no separators are used. Although I do not find it so easy to take out the sections as out of the wide frames and although the sections did not pack so nicely as where separators are used, yet they possess advantages making them so much pleasanter to manipulate that I think I prefer them to the wide frames.

To start the bees promptly to work storing, it is a good plan to raise a frame of brood from the brood chamber, and put in the super between two wide frames. I suspect this gives us all the advantages of side storing. Another plan which I have followed with advantage both with the wide frame and the Heddon supers is to put a frame full of sections in the brood chamber and as soon as the bees commence work on them put on a super and put the sections in it.

I like starters of foundation which fill the section, and have had the best success with foundation running seven feet to the pound.

Additional surplus room should be given as fast as needed, by putting empty supers under filled ones; but toward the close of the honey harvest, when it is thought the bees are working on about as many sections as they will finish and still *may* be crowded for more room let an empty super be put on top. The bees will be likely to fill the sections previously put on, before commencing on these new ones.

Among the many matters belonging to the subject which I am obliged to omit, I know of none more important than the management of swarming, none upon which I more anxiously desire light. I can do no more than suggest it for your discussion; and, from the discussion, information will surely come. Suppose no increase is desired, is it best to suppress all swarming in order to secure the greatest yield of comb honey? If best to allow swarming, how shall the swarms be managed? If swarming is to be suppressed, what are the best means to suppress it, and what shall be done if swarms actually issue in spite of the utmost efforts at prevention? Light upon these questions will be welcomed by all producers of comb honey.

This was discussed by the members as follows:

L. C. ROOT.—In securing the best yield of surplus honey we use the large Quinby hives and manage them on the non-swarming plan. Our seasons are short and we must consequently have very populous stocks. We prefer both side and top storing with boxes placed in clamps and so arranged that they are interchangeable with sides

and top. We prefer boxes with a narrow end so that the entrance to them is abundant. Our effort is to induce the bees to commence work in as large a number of boxes at once as we expect them to fill. The first boxes supplied are placed upon the top of the hive and after the comb is partly worked down they will be nearly completed at the top; they are then removed from the top and placed at the sides. It will be seen that the unfinished parts will come toward the brood and will be more quickly completed than they would at the outside; after which a fresh lot of boxes is placed at the top. We prefer the $5\frac{1}{4}$ by $5\frac{1}{4}$ box.

MR. ISHAM.—I agree with Mr. Root but object that there must be a larger entrance; we find no difficulty in using this entrance $\frac{1}{4}$ inch and we practise the same method. I would like to ask Mr. Root how he uses the sections in the body of the hive without using wide frames. Is it just as well to use the wide frames?

MR. ROOT.—We prefer to use those that I have described.

MR. ASPINWALL.—The question of wide frames is worthy of our careful attention and as each person chooses a kind of his own it may be well to let each choose for himself. I prefer the one from which we can obtain the largest yield of honey in the best marketable shape.

MR. BENEDICT.—There is one point which we should freely consider and any one disposed to use section racks without separators would take example from it. I think we should get the opinion of the association on this matter. Our efforts should be to manipulate all sections to the best advantage to get the largest amount of honey in the most marketable condition. I claim that any person cannot successfully use the section racks without separators.

Considerable time was spent in listening to Mr. Benedict's explanation of the honey racks as used with separators.

MR. BOSWORTH.—Dr. Tinker has a hive in which he uses no separators having passage ways between the sections similar to those described by Mr. Benedict with an air space also between the brood chamber and the sections.

MR. BENEDICT.—Dr. Tinker's hive is simple and square, that is, using the hive without the separators he sets the sections down upon the frames leaving a continuous passage way between the sections to the top without having any separators in the way.

MR. BETSINGER.—I have had some experience with securing comb honey without separators and have had all that I want. I attempted it but it came to nothing. The fact is, we must use separators as a necessity as well as a convenience: we are obliged to use them.

MR. ROOT.—All of our experience tends to prove the absolute necessity for using separators for producing comb honey in section boxes, if all of the requirements of our best markets are to be complied with.

The next topic for discussion was, Which is the best food and how shall it be fed?

MR. DICKINSON.—Pure nectar from the flowers, or honey.

MR. ASPINWALL.—I think it is almost impossible to feed to the bees honey or sugar syrup containing honey as robber bees are attracted by it, causing trouble.

The convention then adjourned to meet at 7 o'clock, P. M.

EVENING SESSION.

The convention was called to order at 7 o'clock P. M., President Clark in the chair.

The following paper was then read.

COMB FOUNDATION: THE BEST FOR USE IN BROOD CHAMBER AND SURPLUS BOXES.

BY C. P. DADANT.

THE movable frame hive can only be a success when the combs are all built perfectly straight in the frames. All practical beekeepers have seen instances, where a man would become an enthusiastic beekeeper, buy a large quantity of high priced movable frame hives, and, in a short time, throw the business up in disgust, because he had allowed his swarms to build combs as they saw fit, and all or nearly all, of the combs of which so-called movable frame hives have become worse than box hives by the irregularity of the combs.

In order to secure straight combs, in movable frames, divers means have been devised. First was the bevel, on the under side of the top bar. This invention was claimed by several parties, and was the cause of several lawsuits between the different inventors. And yet, this invention was never entirely successful; as the bees would not always follow the bevel, and would also often join their combs together, or cross them, a little farther down in the frames.

The next step was to glue pieces of comb, or strips of beeswax, to the underside of the top bar. This improvement was subject to the same inconveniences as the first, though in a less degree; and there was still a great inconvenience, the removal of which was indispensable to successful beekeeping: it was the *over production of drones*. In many instances one-fourth of the combs of a hive were drone combs. This over-production of drones was injurious in many ways. It lessened the amount of workers raised, for three workers could have been raised where two drones were hatched, at the same cost; and, besides, there was an increase in the consumption of honey; since these big loafers were all hungry and unproductive. In many instances the drones of a hive eat the surplus, which the beekeeper should harvest.

But the main inconvenience was the necessity, for the bees of a swarm, to build all of their comb; thus, often spending the best part of a short honey season, without storing much honey, and going into winter quarters with scant supplies. Practical beekeepers, knowing the cost of honey comb, very often tried to supply their swarms with empty combs from dead colonies; but these were never sufficient to supply the demand.

Mehring, a learned German apiarist, was the first to try an artificial help to the bees in the matter of honey comb. He manufactured a *press*, which gave, to sheets of wax, a rude appearance resembling the cells of a honey comb. Unluckily this attempt was not fully successful. The slightly shaped cells were not deep enough, and the bees often transformed his intended worker cells, into drone cells.

Another distinguished apiarist, who published an apiarian magazine in Switzerland, Mr. Peter Jacob, improved the Mehring press, so that, for a few years before his death (1878), he manufactured and sold over 10,000 sheets of foundation a year.

This amount, which seems very small now, was, however, quite large, considering the time and the product.

Until 1875, the manufacture of comb foundation was entirely ignored in America. Mr. S. Wagner had indeed taken a patent concerning it, but he had never attempted to put it in use.

Mr. F. Weiss, of N. Y., then commenced manufacturing on a press. Whether his press was home made, or imported from Europe, we are unable to say. But the cells it made were already too deep for the bees to change them into drone cells, and they were quite successful.

Mr. A. I. Root then thought of putting this invention into more practical use, and his first success and we may say the first really successful machine was the mill manufactured for him by Mr. Washburn, and which appeared about March, 1876.

This machine opened a new era in the matter of artificial comb foundation, and, if we owe Mehring thanks, for the first step, we owe A. I. Root thanks for the first *practical machine*, and especially for the *spread* of this practical invention. Others have since improved the rolls, and greatly surpassed his, among them we would cite J. Vandervort and Mr. F. Dunham. The American rolls are now popular both in America and Europe, and the old German presses have been almost entirely discarded; the mills offering much greater advantages, on account of the uniformity and smoothness of the sheets, their great pressure also rendering the wax more malleable and more easily worked by the bees.

The result of all these improvements is so great that the machines of all kinds are numbered by the thousands, and the production of foundation has so enlarged, that the firm, of which the writer is a member, has increased its manufacture *a hundredfold in five years*.

The comb foundation, as now made, obviates all the inconveniences above mentioned. No more crooked combs; no more drone combs; no loss of time. A natural swarm finds three-fourths of the labor done; in five days they have a hive full, where it took four weeks before. They do not raise any drones, except an occasional strip full, in some overlooked corner; and every comb is as straight as a board.

The result is not far. In a few years more, honey instead of being what it used to be, what it is yet for the ma-

jority, "*a luxury*," will be *one of the staples*, as plentiful, and of as ready sale as *butter, cheese* or *sugar*.

But I have not yet touched the main subject of this essay: *The best foundation for brood and surplus.* I would beg leave to divide this in two parts.

The best foundation for brood is that which will look most like the natural comb of the bee, and will contain the most material for comb.

We must not lose sight of one thing, in the matter of comb foundation; that, which we are striving to imitate, *natural bee comb.*

Therefore the nearer we come to it, for *shape, size, cleanliness* and *purity* of material, the more quickly our bees will take it, the better they will like it, and the stronger it will be. Moreover, keeping this object in view, we must try to give our bees as much material as possible to build their comb; we must also give them a sheet strong enough to bear their weight, until they get it worked out as it should be. We here wish to call your attention to the necessity of comb foundation being stronger than natural comb, owing to the way in which the bees work it. When bees build a comb they begin, usually, at the top, work downward, making their comb wider, broader and stronger as they go. On comb foundation, they begin wherever they happen to be; sometimes at one end, sometimes at the top, sometimes at the bottom. Meanwhile the foundation has to bear their weight; and, if they begin at the bottom, it may have to bear the weight of brood and of some honey, before they fasten it and stretch it, as it should be.

Therefore we should select, for *brood chamber use*, the samples that will nearest resemble bee combs, and will, at the same time, contain in their walls, a quantity of wax sufficient to build the entire comb, as the bees will invariably work it out.

Wiring has some advantages; but it is a deviation from the aim we have in view; which is *imitation of natural combs;* and the bees often show us their dislike of wires, by cutting the foundation away from them *in places.* Properly made, foundation *without wires*, will not sag, after it is built, any more than natural combs.

The best foundation for surplus is that which will most resemble honey comb, and will come nearest, in thickness of base and side walls, to the naturally built combs. As a matter of course, in the requisites of this foundation, should be quality, cleanliness, purity and light color of the material employed. For this, neither bleached nor dark yellow wax should be used, but the finest quality; that which is usually made from cappings, it being the nearest, in color and texture, to the wax, usually made by the bees, out of the whitest honey. This surplus foundation cannot be used in strips wider than six inches with any show of success, as it is so fragile, and easily torn, by the weight of the bees; but, when once built upon, it would take a good judge, to detect it in comb honey. Some objection has been made to its use, for fear of displeasing consumers; but, the past two years' experience with our markets has proved that no one objects to it; and wherever we have shown it to strangers, informing them of its use, the most delicate ladies declared it was "*nice enough to eat;*" therefore no fear need be entertained on this point.

In conclusion, we might perhaps give the names of the machines which we consider as best, for either purpose; but, as all are striving for improvement, we think we have said enough, to allow any one to judge for himself, from samples.

One more word, and this on a subject which interests all alike, manufacturers or beekeepers.

The manufacture of comb foundation absorbs so much beeswax that the price of this material has risen, in two years, from twenty to over thirty cents. The annual production of the U. S. has already failed in supplying the demand; and we had to seek for more abroad. Unluckily, there are, between nations, barriers, which some call "protective of their industry," and which are usually termed "duties." We will not enter into a discussion of the question of "American protection," which would be out of place; but we will say that, in the case of beeswax, the duty is not useful, but injurious to the interest of American producers of this article, as it keeps out of our ports an article which the beekeeping public need, and cannot produce, without loss. In our case the words "protection of industry" are the exact reverse of the truth.

It behooves this society, as one of the most influential in the United States, to try and obtain, from our legislators, a redress of this grievance, and thus open our harbors to a product, which is now forced toward Europe. All practical beekeepers, without excep-

tion, will derive a direct benefit from the abolition of the duty on beeswax.

It is hoped that a committee will be appointed by your society, and that they be successful in obtaining redress.

This subject was opened for discussion by the members as follows:

MR. ASPINWALL.—As regards the production of comb foundation I am afraid that were we to remove the duty on wax, we should have to compete with the wax which is now being produced in Cuba and upon which there is a high tariff. If this tariff were discontinued it would entirely ruin our honey market.

J. VAN DEUSEN.—I am glad to know that Mr. Dadant has given us a veritable history of comb foundation. He also tells us that pure beeswax has risen in price in the last two years from 20 to 30 cents; I would say from 25 to 42 cents. I do not know how we shall meet the increasing demand for wax and keep the prices down. I have tried dipping cloth, paper, etc., in wax but all to no purpose. We do not wish to make our bee hives storehouses for wax; we want our foundation as light as possible for use in surplus sections; and to answer the purpose where you make a firm foundation, for use in the brood chamber you must use wire. Where you use a foundation without wire it is necessary to use much more wax; some say from four to five square feet (without wire for brood chamber). I should say that four to four and a half is heavy enough.

In making our foundation we use wires and cover them so that there can be no objection to them. The only way in which you can use wire properly is to put it in a flat bottom foundation. Where you use wire in foundation having a natural base to the cell, you will always find the wire exposed in the bottom of the cell. When you make the foundation from six to seven feet to the pound and cover the wire perfectly all objection is removed. In making our foundation we strive to have the base very thin with all the wax in the side walls that the bees will utilize. Mr. Dadant does not refer particularly to foundation for use in the surplus boxes, but until the introduction of flat bottom foundation I believe that there was nothing thinner than about six feet to the pound. Flat bottom foundation is stronger than that having the natural or hexagonal base of cells, and is less liable to stretch, comparing the two to strips of paper the one straight and the other crimped. With the flat bottom foundation we have had two pound boxes filled and sealed over in four days, thus showing that the bees did not lose anything by not having more wax in the foundation, and they did not object to the form of the cells. I do not think that wax can be compressed enough to harden it either by pressure or rollers.

MR. ASPINWALL.—We used about 250 pounds of the wired, flat bottom foundation last season and it was well accepted by the bees. If any of the wire is exposed and the bees have nothing to do and there is no honey coming in, they will be more liable to dig it out.

MR. RIANS.—I have used a large amount of wired foundation and have never known the bees to object to it.

C. G. DICKINSON.—I experimented with several kinds of foundation. The best foundation is that which contains just the quantity of wax that the bees will utilize. I have had the best success with the Vandervort foundation.

MR. VANDERVORT.—I do not wish to say anything on this subject, first because when I was at Toronto I was reported as saying just what I did not say and I do not wish it reported. Second, because there are those who have more experience in the practical worth of it than I have. I find a great many times on shaving off the honey that the bees have utilized the wax and at other times that they have left the foundation just as it was when put into the sections. I have never been able (as was suggested by Mr. Dickinson) to succeed in giving the bees enough wax to complete the cells. I prefer three to five square feet to the pound for the brood chamber and eight to nine for surplus boxes. I do not think that wax can be compressed so as to harden it either by presses or rollers.

L. C. ROOT.—Capt. E. J. Hetherington has several thousand combs built upon flat bottomed wired foundation and has never had any trouble by the bees gnawing the wires out. Many of our very best apiarists have had good success with this foundation and the opinion of such men should have its weight with us. For surplus boxes the foundation should be light enough not to leave any fish bone in the honey. I do not think as a rule that the base of flat bottom foundation is changed

to a natural base; if I did I certainly should not advocate its use at all. In some cases in surplus boxes they do attempt to change it.

MR. BALCH.—Foundation is the best when first made and is accepted by the bees more readily than that which has been made some time.

This question was discussed at some length the results of which cannot be given here for want of space.

How can we supply the increasing demand for wax was next discussed.

MR. VAN DEUSEN.—I think that we have yet to learn how to meet the increasing demand for wax. As before stated I have experimented in various ways to solve this question but without success.

L. C. ROOT.—I am opposed to any adulteration in wax for the manufacture of foundation.

MR. ASPINWALL.—Some kinds of foreign wax are not fit for use in making foundation.

The subject was discussed by others when the convention adjourned to meet at 9 o'clock in the morning.

SECOND DAY.

The convention was called to order at 9 A.M. with President Clark in the chair. Messrs. L. C. Root, I. L. Schofield and R. B. Rians were appointed as a commitee on the question drawer, and Messrs. J. Van Deusen, G. W. House and C. G. Dickinson, were appointed as a committee on resolutions.

After the reading of a letter which stated that Mr. D. A. Jones was unwell and unable either to present or prepare his paper on "The New Races," discussion was opened upon this subject by the members.

SILAS M. LOCKE.—While I feel incompetent to fill the place of Mr. Jones in opening this discussion yet I will explain in a few words my experience with these "New Races" both in the apiary of Mr. Jones, with the original imported stock and on this side of the line. I have decided that a cross, produced by mating a first class Italian queen with *pure* Holy Land or Syrian drones, gives the largest bees and best workers.

I have every reason to believe, that the Holy Lands are the original race from which our yellow races emanated and to which source the latter may be traced.

As regards the testing of these new *races* there are those who are probably better fitted than I to pass judgment upon their worth to honey producers. While with Mr. D. A. Jones in 1880, I was surprised to find that while Mr. Jones lost most of his first importation that he tried to winter and had but two Holy Land and two Cyprian breeding queens of the imported stock with which to commence the season's operations, yet on our side of the line, queens of these new races were advertised for $1.00 each by a large number of parties. I think there have been a large number of hybrid queens sold for pure Holy Lands and Cyprians, and this perhaps without the knowledge that they were hybrids. Again, our Italian bees when first imported were subject to the same severe criticism and doubt, and when the "new races" have been more thoroughly tested I think they will be more favored.

I believe that we have much to hope for in the crossing of the Holy Land or Syrian with the Italians, with perhaps a slight mixture of German blood. We should remember in examining the conflicting opinions given regarding these races, that their characteristics differ in different portions of the Holy Land, and I believe that after we have given them the same careful selection and breeding that we have the Italians many of us will have more to say in their favor.

R. P. RIANS.—Mr. President, I have had several races of bees and will say simply that the Cyprian bees and their crosses are the best bees and the best workers.

L. C. ROOT.—The matter of the new races of bees is one of great interest. There is much said in the favor of the new races and their crosses that is unwarranted; and this is not to be wondered at. One great trouble is, that the sources from which we look for our information are too much biassed by personal interest. The fact is that anything new is apt to be over-estimated. Now I have experimented with the different races but not enough to warrant me in saying what may come from crossing our American bees with the new races.

It is very strange that during these years, we have bred our Italian queens so carefully, that they are not the best race of bees known to Ameri-

cans, and it is certainly my opinion that they are such.

I would not claim that there could be no improvement, and would be sorry to have this idea go out from this convention to discourage all the attempts that have been and are being made to introduce these new races of bees. All honor is due to those who will leave their homes and go to foreign lands to secure to us those different races of bees, and I believe that we appreciate their efforts.

SILAS M. LOCKE.—While with Mr. Jones I discovered that the Holy Lands and Cyprians work farther from the apiary than do the other races, and that they will work striving to obtain honey when there is a honey dearth. There was, quite near the apiary, a little patch of red clover which, being in rich soil, had grown very rank and with large heads. During an abundant flow of white clover honey we noticed the Holy Land bees working in numbers on this red clover, and in their efforts to secure the nectar they would force their heads into the corolla tubes; then came the continued pulsation of the abdomen which showed that they were filling with honey, and they would visit but a few heads of clover before returning to the hive.

Mr. ISHAM.—We want the bees that will gather the most honey, whether they be Italians, Cyprians or blacks. We wish to give the black bee credit for all the merits it possesses.

Mr. BALCH.—I have had in my apiary Cyprians, Italians and pure German bees. I think the Italians superior. I have found that my Italians come through the winter stronger in the spring than the native Germans, and that the Germans were weaker in spring than the others.

Mr. CHAPMAN.—I have tried the pure Italians and find that they are good.

This was followed by

INTRODUCING QUEENS BOTH LAYING AND VIRGIN.

BY J. P. H. BROWN.

I AM not aware, from the records of apicultural history, that any attention was ever paid to the interchange of queens prior to the experiments of that greatest of investigators Huber. If there was, it was certainly not done with a view to the improvement of the race or condition of the bees. Huber did it to ascertain the disposition and behavior of worker bees toward strange queens.

The readiness with which a motherless colony of bees will accept a strange queen, seems to depend, first, upon the temper or disposition of the bees at the time of her introduction; and, second, upon the disposition of the queen at the time of her release, or admission to the bees. The *secret* of success depends upon the *degree of knowledge* and *tact* the operator can bring to bear toward controlling all feeling of antagonism, and reducing both bees and queen to a state of pacificness.

Every beekeeper of the most limited experience knows that bees differ very much in disposition. Some colonies will accept a strange queen more readily than others when the conditions, to all appearances, are the same. Queens differ also in disposition. Some are more timid than others. When such are released in a strange colony they run and act in a manner that directs the attention of the bees toward them as strangers, and adds to their danger. As a general thing, Cyprians, Syrians, and hybrids, take to a strange queen with greater reluctance than either Italians or blacks.[1] Cyprian and Syrian queens are wild and scary, and are consequently not as readily received as matronly Italian queens. The season and condition of the colony also make a great difference in the way of successful introduction. When the bees are gathering plentifully of honey, and working with a vim, most any plan will succeed; but at times when they are idle, they seem to possess more perversity of disposition, and show more hostility to strange queens.

Notwithstanding I have introduced my thousands of queens, and have tried nearly every conceivable plan of doing so, yet I fear I cannot offer anything new, nor different from what you already know. I cannot boast as some can, that they never have a failure. Any plan is liable to fail at times when the operator relaxes his vigilance, or neglects to observe all the indications re-

[1] One well known *black bee* which was originally imported into this country from Germany, is now sometimes termed *German* bee. This application of "German" as an adjective qualifying bee is correct; but "*brown* German," is not only far fetched, but is calculated to mislead and deceive.

quired in the case. He should suit the plan to the temper of the bees, the value and variety of queen, and to the season. These are points worth remembering.

I will describe three plans of introduction which should be modified by the intelligent apiarist to suit the circumstances. 1. By forming nuclei. 2. By interchange of hives and frames with sprinkling with scented water. 3. By caging.

1. The first plan is an old one but well suited to insure the safety of very valuable queens. It should be borne in mind that it can only be used when the weather is warm. Prepare an empty hive or box that will hold three or four frames, and close up the entrance with wire cloth. Go to a strong colony and select a card of comb that contains some honey and brood all capped and most ready to crawl out. If there is any brood uncapped, it will most likely die and decompose, which will be injurious to the inmates of the hive. Place the frame of comb in your new hive. Open the cage containing the queen, and place it in the box beside the frame, and let her majesty crawl out at will. Close box and set it in a dark room for forty-eight hours; by this time most of the brood will be hatched, and the queen's force will be quite respectable. Add another frame of the same sort of brood, and keep the hive closed forty-eight hours longer, when it can be placed on its stand. The entrance must be contracted so only one bee can pass at a time, and weeds or grass should be placed in front to guard against robbing. From time to time add frames of hatching brood, and the colony can soon be built up into a strong stock.

2. The sprinkling plan is tedious and very laborious, and is only to be recommended when a very choice queen is to be introduced to a strong swarm. Prepare an empty hive of the size of the one containing the colony, and open all entrances and holes to their full capacity, and tack wire cloth over them. We will call this empty hive No. 2 and the full hive No. 1. You also need a basin of water, to which you can add a few drops of some scent, such as peppermint, etc., and a small whisk broom. Go to hive No. 1, from which you have removed the queen you want to dispose of, and draw a frame of honey, brood, and of adhering bees and carry it to hive No. 2. Now take the whisk and sprinkle the bees *well* with the scented water —give them a good wetting sufficient to take all fight out of them— and place the frame in the empty hive. Drop the queen in and close hive. Set the hive in a dark room or cellar and allow it to remain twenty-four hours, then go and draw another frame, with the adhering bees from No. 1, and after giving a thorough sprinkling, place it in No. 2 alongside of the first frame, and quickly close the hive. At the expiration of twelve or sixteen hours, draw from No. 1 again, and repeat the same process until all the frames, except three or four, are removed from No. 1 and placed in No. 2. Then late in the evening, place No. 1 at some distance on a new stand, and set No. 2 in its place, and release the prisoners. Take the precaution to contract the entrance so only one or two bees can pass at a time and place grass and a piece of board in front. By noon, the next day, nearly all the old bees will have returned to the old stand. After sprinkling the remaining bees in No. 1, you can add the frames to No. 2; or set No. 1 where it first stood, and return all the frames to it. When drawing the frames to sprinkle, always look out for queen cells which remove. This plan is long and tedious, but nearly always certain.

3. This plan is by means of a cage. The best form of cage that I have ever tried is one with an open side that is pressed into the comb. This cage places the queen directly on the comb and if the cage is three or four inches in diameter, and pressed immediately over both cells of uncapped honey and cells of crawling-out brood, the queen will have food, and soon a little band of subjects. The wire for these cages I prefer to be of not less than twelve meshes to the linear inch. They can be rectangular, square, or round in shape. I have the sides three-fourths inch wide, made by turning up the edges of the wire. For durability, I have a strip of tin soldered around the edge. The edges of cage should be securely pressed into the comb so that the bees cannot readily cut under. If the bees can *easily* undermine the cage and get into it, they may kill the queen. To guard against the displacement of the cage, and to hold it securely, I confine it by clamping it with two sticks, wired at the ends.

The length of time the queen should remain caged depends on the disposition and behavior of the bees. When honey is coming in plentifully, forty-eight hours may be sufficient; but when they are idle, it may be necessary

to keep her caged much longer. Never release a queen as long as the bees cluster in force on the cage and exhibit anger by biting at the wires and trying to crawl in. Instead of pulling the cage from the comb to release the queen, take the small blade of a knife and cut a hole through the comb from the opposite side. This hole should only be large enough to admit the passage of a single bee, and the chips of comb should be allowed to remain in the hole to be removed by the bees. This small hole allows the bees to get into the cage and become acqualnted with the queen before she is released. When a bee enters the cage in this manner, it seems to be so occupied with the novelty of the situation, that it loses its desire to molest the queen. The next day the hole should be cut large enough to allow the queen to pass out at will, not forced out.

It is always best to examine the hive in about twenty-four hours after releasing the queen to see if she is out of the cage, and how she has been received. If the bees are "balling her" (which is not likely), she must be re-caged. The balling is generally attended with permanent injury to the ovaries of the queen.

Many narcotic and anæsthetic preparations have been used to stupefy the bees, such as tobacco, puff-ball (*Lycoperdon bovista*), ether, chloroform, etc. The queen is dropped into the hive after the bees get fully under the influence of the drug. These agents are applied by means of the bellows smoker.

The application must immediately stop as soon as the bees commence to fall to the bottom board. I have experimented with puff-ball, ether, and chloroform, and have come to the conclusion that the operation is attended with injury to the colony.

I have never had the *honey-smearing* process (that is, rolling the queen in honey) attended with good results. Most of such queens will come through the ordeal with torn and ragged wings, caused by the bees gnawing them when removing the honey.

In introducing virgin queens my experience has not been satisfactory. I have succeeded by caging them, and releasing them by the plan previously described; but no plan that *consumes much time*, however successful, will pay. The risks of introduction added to the risks attending fertilization are too great. When just hatched or crawling out of the cell, I have had the best success by very gently removing the cover from the hive, turning back one corner of the quilt, and allowing them to crawl down on the frames, but by this plan I have lost fully 75 per cent. When I read and hear beekeepers say that they have invariable success in introducing virgin queens, I am constrained to think that either some auspicious star shapes their plans, or else with them, "one swallow makes a summer."

The subject was followed by discussion.

Mr. Balch. — When opening a hive to introduce a queen I find it best, in my experience, to use just as little smoke as possible. I take the old queen from the hive, pinch her head off and throw her away. The cage containing the queen to be introduced should be covered up so that she shall be just as quiet as possible, then I take a little from the hive on the point of a knife and as the queen passes out of the cage, smear her with honey. In this way I have never lost a queen. It acts upon the queen as water does upon bees; the bees begin immediately to clean the honey from the queen, and as long as we can keep the bees quiet when introducing the queen all is well.

Mr. Dickinson.—I disapprove of the smoking process which I think injures both the queen and bees. I prefer to adopt the following method; shake a portion of the bees off the combs into a box, first disposing of the old queen, put the new queen in the box with the bees (and as my queens are all clipped there is no danger of her flying away) then take the box and rock it in such a way, as to thoroughly mix the queen with the bees (meanwhile confining the bees in the hive by closing the entrance); after this let the bees run into the hive by shaking them down in front of the entrance.

Dr. Marks.—The best way is to put the queen into a cage on top of the frames and leave then 25 to 48 hours if necessary, then remove the slide of the cage and in nineteen times out of twenty the bees will receive her kindly.

Mr. Aspinwall.—Assuming that I have received the queen in good condition, I go to a colony that has been queenless say five hours, remove a comb and cage the new queen in one side of this comb in one of the little round "Betsinger" cages. These cages are about 1¼ inches in diameter made

of a piece of wire gauze and around whose edge is fastened a strip of tin ½ inch wide, made into a ring so that the cage when finished resembles a little tin cup having a wire gauze bottom. I always cage the queen over sealed honey if possible and press the tin rim as far as possible into the comb, without hurting the queen, so that the bees cannot eat in from the side on which the cage is placed. When I have caged her, I take my knife and cut, from the *opposite* side of the comb *into* the cage, a hole about ½ inch in diameter leaving the plug of wax and honey in the hole. The bees will eat this plug out, and in that way liberate the queen, in from two to ten hours. The whole operation will not take over five minutes, and by this method I introduced over 500 queens last year with the loss of only two.

MR. LOCKE.—To introduce a queen easily and successfully, go to the colony into which you wish to introduce the queen, secure the old queen, cage the new queen upon the side of the comb, cut a hole through the comb into the cage from the opposite side, washing the plug but leaving it so that the bees will readily move it, and return the comb to the hive. The object in this method is, the bees, on finding that their queen is missing, at once accept the new one, instead of starting queen cells, while if the bees were left queenless until they start cells it is hard to get them to accept a queen. I would say further that, as an experiment, I have successfully introduced a few virgin queens over three days old in this way. When possible introduce these queens at sunset.

MR. BENEDICT.—I cage the queen similar to the above methods, and release her as soon as the bees become quiet. As a rule it is not necessary to keep the queen caged over twenty-four hours, but I once had a queen caged seventeen days before the bees would accept her.

MR. BETSINGER.—The process of introducing laying queens by my method cannot be excelled I think. The method is this—there are certain conditions to be observed in introducing queens—the sooner the new queen or stranger (for she is a stranger) is introduced after the old one is removed the better; for it is then that the colony is in the best condition to receive her—because at the moment when the bees miss their queen they will accept most anything to meet the emergency—when if we wait until the bees recognize their loss before receiving a queen, they will commence cell building when we should have to wait from five to ten days to overcome this. With this method we have perfect success. To show what faith I have in this I would state that I purchased a queen costing $10.00 and introduced her by this method. If I can risk such a queen, I think other beekeepers could risk $2.00 queens. There is still another cage much better than mine and costs nothing, which I will describe—take an old queen cell and cut it open lengthwise on one side, open the cut carefully and put the new queen into this cell, carefully closing it again, and insert the cell into the hive, The queen will gnaw herself out and all is well.

REV. VAN SLYKE.—I am glad to greet the brethren and very glad that this convention is gathered here, as I hope it may be for years to come. I am especially glad to see so many meet in this central city. I was astonished in taking up a journal, "The Beekeepers Guide," to notice an article which is calculated to create a misapprehension, especially in regard to a man whom we revere in beekeeping, Mr. Quinby. It is here inferred that he was very slow in introducing into his apiary the movable frame hives until his son-in-law, Mr. L. C. Root, took charge of his apiary. I know this to be false, as I visited Mr. Quinby's apiary many years before Mr. Root had anything to do with it. I call attention to this matter from the apparent injustice to Mr. Quinby who was one of the first to use the movable frame hive largely in America.

A gentleman, who did not give his name, stated that the article referred to was an editorial written in reply to an article written by a certain Mr. Robinson, and further stated that he lived near Mr. Robinson who did not own a colony of bees and never had.

The following subjects were then offered for discussion:

DYSENTERY: ITS CAUSES AND PREVENTION.

MR. BETSINGER.—I could report the causes of this disease in two minutes, it is caused by the bees consuming more honey in a given time than they should do. Bees cannot consume more than seven grains of honey in their lifetime.

I can cause a colony of bees to have the dysentery and nearly every one will be dead in three days Go to a colony and rap on the hive every little while for three days, and at the end of that time the colony will be dead. This is the cause, and to prevent it our bees should be kept quiet in an even and proper temperature.

SPRING DWINDLING: ITS CAUSE AND PREVENTION.

MR. BETSINGER.—I examine my colonies early in the spring to see their condition. I keep them as warm as possible by covering the frame with old carpets. We cannot keep them too warm. It does not pay to spend much time with poor weak colonies; queens in such colonies are affected as much as the bees, and will seldom recover or regain their usual vitality.

MR. BACON.—When too cold the bees eat too much honey and this difficulty (dysentery) is brought on.

After spending much time without coming to any conclusion, the convention adjourned to meet at 1 o'clock P. M.

The convention was called to order at 1.15 P. M. with President Clark in the chair.

Considerable time was taken up in receiving new members, election of officers, and deciding on next place of meeting. 168 members paid their annual dues. About 200 beekeepers were in attendance who did not become members.

The election of officers resulted as follows:

President, L. C. Root, Mohawk, N.Y.; Vice President, C. G. Dickinson, South Oxford, N. Y.; Secretary, Geo. W. House, Fayetteville, N. Y.; Treasurer, R. Bacon, Verona, N. Y.

Syracuse was the choice of the convention for the next place of meeting; the time for holding the next convention was left to the executive committee.

After the installation of officers, the retiring President, Mr. W. E. Clark then delivered his annual address, which was attentively listened to by the convention.

ANNUAL ADDRESS.

BY W. E. CLARK.

THROUGH the goodness and mercy of our Heavenly Father we are permitted to come together after a year of toil and labor in our favorite pursuit at this our annual gathering to welcome each other. We find in looking over the familiar faces, there is one absent who has finished his work and laid aside the implements of his profession. Brother Houck has gone to that resting place which is eternal. Although young in years, he has left us to battle on in life's journey without his companionship. I had formed but a short acquaintance with him and so far as I am able to judge he was an honest, upright young man. I would recommend that a committee be appointed by this convention to draw up some suitable resolutions on the death of our brother. It is pleasant to know that the calling (if we may call it such) of which we follow is one that any one may feel proud, and yet it is one of sweat and toil; every dollar that a beekeeper gets is well earned. If there is any doubt about it, let us take the testimony of those present that have taken care of an apiary of one hundred stocks for the season. Ask them if they ever had the backache, if they ever felt the perspiration oozing from every pore. We think there is a mistaken idea going out to the public that it is such an easy way to make money; and allow me right here to say that this mistaken idea in my opinion has, to a certain extent, been forced upon the minds of the public by our bee papers giving so much prominence to the gushing reports of the beginner or novice, who has bought two or three colonies of bees, has increased them to an enormous number (thereby glutting the home market with honey) and sent a few thousand pounds to New York, or some other city. These mushroom reports come from a new class every year almost invariably. The hot, burning sun of inexperience has destroyed all the bee enthusiasm there was in them. Those reports very often wind up by saying they owe to a large extent their grand success to the dear "Gleanings" or "Journal" or may be the "Magazine." After we read it we say, oh! how easy to make money, all there is of it is to get a few stocks of bees, take a bee paper and then the work is done, our fortune is made. I think some of our fathers in beekeeping will say as one of old: "O foolish Galatians, who hath bewitched you."

Now, I do not say that it is unwise for our bee papers to publish such reports; neither do I say such reports are not true. I would not shut them out

from being published. But let us have a report every year, good or bad, and from our old beekeepers, and then we may be better able to judge of the gain and loss of beekeeping. The result of giving these wonderful reports is to get lazy and shiftless fellows to try their hand at beekeeping, and the natural result is they make a failure of it and soon sell out at less than cost. A successful beekeeper must be a hard-working and studious man. Both go together. Wisdom culls out the nuggets from the books, then puts them in the crucible of experience and we get the pure gold. But you see there are work and progress to go through after reading our papers.

I remember years ago, of a farmer and a very successful one he was too. He took an agricultural paper. One day, reading of a certain preparation to make corn grow, which was of great benefit to it in planting, he got the material and tried the experiment. The result was, that not a kernel of the corn ever came up or grew. We often find out by experience that which we cannot learn in any other way. Now, let me say again, the beekeepers' money is well earned by hard work. Our friend Doolittle makes his report every year, good or bad, and claims, I believe, that his yearly income is about one thousand dollars from fifty or sixty stocks, spring count. I venture to say that he is one in fifty; where you find one Doolittle, you will find fifty who do not get one-half the above amount. Now, it would hardly be fair to take Mr. Doolittle's report as a standard whereby to judge of the profits of beekeeping. If beekeeping is so profitable above all other pursuits, why is it that all of our members are not millionnaires? I will let the convention answer this question.

I do not say there is no money in beekeeping, or that no one gets rich out of it, but I do say that it requires hard work and good financial ability just as much as in other trades. Now the great question for our fraternity to-day is how to dispose of their products so that they may receive a good fair profit for their work. The past season was not one of the best for honey. Some sections produced well, others poorly, so that we cannot call it a first-class one; yet we find honey a drug in most of our markets and are so quoted by our bee papers. Now I ask what would have been the market quotation of honey to-day, if we should have harvested a large crop of honey all over the states? We think our markets would be glutted and our prices very low. There are some who hold different views from this. They may be right, I may be wrong, but time will show. We shall be disappointed if it does not bear us out in our convictions.

It will be well for us to do all we can to keep up the prices of our products. We think that there are some improvements that we may make in the line of selling our honey. One is to work up a good, healthy home trade and market. To do this, we must sell our honey at reasonable prices, buy up the honey that is produced by our farmers who keep a few bees and throw their honey on the markets early in the season, take truck for pay and accept just what the grocer may give them, thereby establishing the prices (which are very low) in our home markets early in the season, for after the grocer buys one lot at a low price it is hard for him to raise the price, especially if he wants the cash for his honey.

I think this question of sufficient importance to demand a little of the time of this convention. Then, again, I think that our papers (some of them) injure our markets to a certain extent. They begin early in the season to predict a prosperous outlook as to a large yield of honey. Every sign foretells a wonderful crop. It is done with the best of motives, no doubt. The beekeeper is warned in time to lay in a large stock of supplies, and renew his subscriptions for another year, while the grocer and commission merchant entertain the idea that the country will be flooded with honey and prices must of necessity rule low. Now, I would not complain of our bee papers. They are established to make money, just as you and I run our apiaries for the same purpose. I do not take any stock in the idea that the bee journals are published exclusively in the interest of the beekeeper, or that we run our apiaries for the interest of our bee journals, but self-interest takes the lead of all others. We work for the interest of others just so far as it helps us. This is human nature, and it is hard for us to rise above it. Now I candidly believe that the publication of such wonderful reports, and the idea given to the public that it cost merely nothing to raise honey are at least misleading, if nothing more. It was hard work this fall to sell honey early in the season. Those men that kept a few

bees became alarmed and carried their honey into market, selling it for just what the grocer pleased to pay them and taking groceries in payment. I went to one of my customers early in September to sell him some honey. The first thing he told me was he thought he could not buy of me this fall, as having gained a reputation, my price would be too high for him. He said that a man was in his store a day or two before and wanted to sell him nice comb honey; he was very anxious to sell immediately, for he was afraid there would be no market in a few days. He had received this impression by reading that the country was filled with honey. He told the grocer man that it would not be many days before he would see wagons laden with milk cans filled with honey coming into town, and then there would be no chance for him. He finally sold his honey for twelve cents a pound taking most of it in trade. He also showed me a letter from a man in Booneville, offering him honey at a very low figure. I know of a wholesale house in Utica that is selling first-class honey at fifteen cents per pound. Now, what will this price net the producer? Not a very profitable one I think. Now, I am one who believes there is such a thing as overstocking the country with bees and our markets with honey. Let us get rid of this false notion, that beekeeping is so easy and profitable that incompetent and lazy persons can get rich by it as by magic. Cannot some of our writers be prevailed upon to enlighten the public on this point, that beekeepers are a hard-working class, working six days in a week, yes, sometimes seven? I think the time has come when our conventions should make an effort to make it pay financially to those who attend them.

The social part is grand and good. You know that beekeepers are a good set of fellows, open-hearted, frank and jolly. They are always sweet and good-natured, not apt to do wrong. I never heard of one being hung or sent to prison. The meanest thing I ever heard of one's doing was to run away and leave his wife. I was talking with a Roman Catholic girl a short time since, and asked her why it was so many left the Romish church and joined the protestants. Her reply was "no genuine catholics ever leave their church. Those who do are spurious." So I think this man who left his wife was a spurious beekeeper.

The conventions in the past have been of lasting benefit to those attending them, educating us in our profession: how to manipulate and manage our little pets, the best races of bees, the best supplies, etc. Now, if we can devise a plan to hold our markets to a good, fair living price for our products, the result will be beneficial. I would suggest to this convention that we make it a point all over the states to make a display of our products at our annual county fairs and make it a point to sell all the honey we can, especially extracted, in small packages. These things have been done in other places, why not here? Let us try it. Let a number of our beekeepers in each county pledge themselves to make a display; then appoint a committee to see the officers of our fairs, and get them to give us an equal chance with other branches of industry. This, I think, will be one way to help our home markets.

This is the third convention over which I have presided; one as vice president, our worthy president, Dr. Marks being sick and unable to attend. You have always by your willingness to be in order made it a very pleasant duty to preside.

Hoping that this may be the best and most profitable convention yet held, I now thank you for your kind indulgence, and bid you an official farewell.

Mr. Dickinson then offered the following resolutions on the death of Mr. Theo. Houck which were adopted and placed on file.

Died at Denver, Colo., June 16, 1883, of hasty consumption, Theo. Houck of Canajoharie, N. Y., aged 26 years and 3 mos.

Mr. Houck was formerly the editor of the Beekeepers' Exchange.

Whereas, An Infinite and All-wise Creator has deemed it expedient again to remind us of the shortness and uncertainty of life, by the death of our worthy and esteemed brother, Theodore Houck, and

Whereas, The N. E. B. Association desire to place upon record our appreciation of him who has thus early in life been taken, therefore be it

Resolved, That by his death this association has lost a worthy and efficient member, apiculture a zealous advocate, and society a christian gentleman.

Resolved, That to the family of our deceased brother we tender our heartfelt sympathy; and though we would

gladly do more, we can only recommend them to the Great Comforter who alone can bind up the bruised heart, and dry the widow's tears.

Resolved, That a copy of the above be transmitted to the family of the deceased, and also to the county papers for publication.

Resolved, That this memorial be spread on the minutes of this association.

Mr. Dickinson, from the committee on petition to the legislature, made a report as follows, which was accepted and placed on file:

BILL FOR THE ERADICATION OF FOUL BROOD.

President, L. C. ROOT; Vice President, C. G. DICKINSON; Secretary, G. W. HOUSE; Treasurer, R. BACON.

Memorial of Citizens of the State of New York to the Legislature. To The Honorable the Legislature of the State of New York in Senate and Assembly convened.

MAY IT PLEASE YOUR HONORABLE BODY:

The disease among bees known as *Foul Brood* is becoming alarmingly prevalent in several counties of the state of New York, and,

Whereas, Without the protection of a special statute to aid us, we are powerless and wholly unable to cope with this destructive disease, which threatens to cripple the apicultural industry of our state:

We, your petitioners, members of the *Northeastern Beekeepers' Association*, respectfully ask the passage of the following bill for the extirpation of *Foul Brood*.

And your memoralists will ever pray:

A Bill to prevent the spread of foul brood among bees, and to extirpate the same.

SECTION 1. THE people of the state of New York enact: That it shall be unlawful for any person to keep in his apiary any colony of bees affected with the contagious malady known as foul brood; and it shall be the duty of every beekeeper, as soon as he becomes aware of the existence of said disease among his bees, to destroy or cause to be destroyed forthwith all colonies thus affected.

SECTION 2. In any county in this state, in which foul brood exists, or in which there are good reasons to believe it exists, it shall be lawful for any five or more actual beekeepers of said county to set forth such fact, belief, or apprehension, in a petition addressed to the judge of the county court, requiring him to appoint a competent commissioner to prevent the spread of said disease, and to eradicate the same; which petition shall be filed with and become a part of the records of the court where such applica tion is made.

SECTION 3. It shall be the duty of the County Judge, on the receipt of the petition specified in section two, of this act, to appoint within ten days thereafter a well known and competent beekeeper of said county, as a commissioner, who shall hold his office during the pleasure of said court; and a record of such appointment, and revocation, when revoked, shall be filed as a part of the records of the said court.

SECTION 4. It shall be the duty of said commissioner, within ten days of his appointment as aforesaid, to file his acceptance of the same with the court from which he received his appointment.

SECTION 5. Upon complaint of any two beekeepers in said county in writing and on oath, to said commissioner, setting forth that said disease exists, or that they have good reason to believe it exists within said county, designating the apiary or apiaries, wherein they believe it to be, it shall become the duty of the commissioner, to whom such complaint is delivered, to proceed without unnecessary delay to examine the bees so designated; and if he shall become satisfied that any colony or colonies of said bees are diseased with foul brood, he shall, without further disturbance to said bees, fix some distinguishing mark, upon each hive wherein exists said foul brood, and immediately notify the person to whom said bees belong personally or by leaving a written notice at his place of residence, if he be a resident of such county; and if such owner be a non-resident of such county, then by leaving the same with the person in charge of such bees, requiring said person, within five days, from the date of said notice, to effectually remove or destroy said hives, together with their entire contents, by burying them or by fire.

SECTION 6. If any person neglect to destroy, or cause to be destroyed, said hives and their contents in manner as described in section five, after due notification, he shall be deemed guilty of a misdemeanor, and punished by a fine not to exceed fifty dollars for the first offence, and for each additional offence he shall be liable to a fine not to exceed one hundred dollars, at the discretion of the court; and any justice of the peace of the township where said bees exist shall have jurisdiction thereof.

SECTION 7. The commissioner shall be allowed for services under this act, two dollars for each full day, and one dollar for each half day, the amount to be audited by the board of supervisors.

SECTION 8. In all suits and prosecutions under this act, it shall be necessary to prove that said bees were actually diseased or infected with foul brood.

COMMITTEE ON PETITION.

C. G. DICKINSON, L. C. ROOT,
C. R. ISHAM.

Signed by the following members.

W. E. Clark, Oriskany, N. Y.
Geo. W. House, Fayetteville, N. Y.
S. M. Locke, Salem, Mass.
L. C. Root, Mohawk, N. Y.
R. B. Rians, York, N. Y.
D. Marsh, Jamesville, N. Y.
E. A. Knapp, Jamesville, N. Y.
S. Snow, Fayetteville, N. Y.
Oscar Dines, Fulton, N. Y.
J. E. Fuller, Homer, N. Y.
O. P. Dresher, Syracuse, N. Y.
Dr. A. H. Marks, Baldwinsville, N. Y.
J. H. Martin, Hartford, N. Y.
G. H. Knickerbocker, Pine Plains, N. Y.
W. H. Bunnell, Navarino, N. Y.
H. P. Tolman, E. Onondaga, N. Y.
L. S. Newman, Peoria, N. Y.
F. L. Smith, Chittenango, N. Y.
Lyman Reid, West Winfield, N. Y.
C. H. Smith, St. Johnsville, N. Y.
J. Aspinwall, New York City.
L. S. Stimson, Port Leyden, N. Y.
Miles Morton, Groton, N. Y.
S. H. Burroughs, Vesper, N. Y.
Mrs. J. W. Tefft, Collamer, N. Y.
Mrs. C. G. Dickinson, So. Oxford, N. Y.
Mrs. G. W. Gasper, Geneva, N. Y.
C. H. Clark, Oriskany, N. Y.
E. J. Stetson, Starkville, N. Y.
S. Bann, Little Falls, N. Y.
F. Gillett, Cicero, N. Y.
C. H. Whitney, Cleveland, N. Y.
A. R. Gates, Little York, N. Y.
F. H. Gates, Chittenango, N. Y.
Nathan Bailey, Cardiff, N. Y.
A. P. Slater, Preston, N. Y.
D. D. Ormsbee, DeWitt, N. Y.
W. S. Benedict, Perry Center, N. Y.
F. C. Benedict, Perry Center, N. Y.
E. B. Ross, Syracuse, N. Y.
W. L. Foster, Warners, N. Y.
G. W. Gasper, Geneva, N. Y.
Perry Case, Navarino, N. Y.
Thomas Pierce, Gansevoort, N. Y.
F. A. Schmidt, Clinton, N. Y.
H. Root, Otisco, N. Y.
C. R. Isham, Peoria, N. Y.
C. J. Van Eaton, York, N. Y.
I. L. Schofield, Chenango Bridge, N. Y.
G. D. Wands, Collamer, N. Y.
W. L. Coggshall, West Groton, N. Y.
L. H. Talmadge, West Groton, N. Y.
F. C. Burmaster, Irving, N. Y.
W. V. Bosworth, Jr., Clockville, N. Y.
C. G. Dickinson, So. Oxford, N. Y.
E. Hutchinson, East Avon, N. Y.
D. H. Coggshall, Jr., W. Groton, N. Y.
M. C. Hand, Syracuse, N. Y.
R. Bacon, Verona, N. Y,
Levi Wood, Sheds Corners, N. Y
J. Van Deusen, Sprout Brook, N. Y.
J. B. Gridley, Ilion, N. Y.
F. E. Burns, Thorn Hill, N. Y.
Mrs. Sarah Hess, Chittenango, N. Y.
C. L. Bailey, Romulus, N. Y.
Robert Ray, Turin, N. Y.
O. E. Root, Otisco Valley, N. Y.
W. F. Roe, Candor, N. Y.
Arnold Wyman, Montezuma, N. Y.
Henry Worth, Borodino, N. Y.
C. L. Parker, Syracuse, N. Y.
F. W. Parent, Charlton, N. Y.
Geo. Smith, Liverpool, N. Y.
L. E. Tripp, Cicero, N. Y.
O. G. Smith, Seneca Falls, N. Y.
H. White, Oneida Lake, N. Y.
Rev. W. S. Lewis, Verona, N. Y.
J. D. Wileman, Collamer, N. Y.
M. B. Warner, Cardiff, N. Y.
J. E. Burdict, Kings Ferry, N. Y.
H. E. Hessler, Syracuse, N. Y.
H. J. Bosworth, Truxton, N. Y.
A. K. Thomas, Amboy, N. Y.
Stephen Mowry, Syracuse, N. Y.
Francis Cullen, Mottville, N. Y.
W. J. Hills, Vernon, N. Y.
Almon Baker, Cazenovia, N. Y.
A. Tuttle, Clockville, N. Y.
F. A. Salisbury, Geddes, N. Y.
H. Gilmore, Georgetown, Wis.
E. W. Landon, Brookton, N. Y.
G. W. Stanley, Wyoming, N. Y.
J. N. Taylor, Ilion, N. Y.
N. N. Betsinger, Marcellus, N. Y.
L. Sitterly, Euclid, N. Y.
G. T. Wheeler, Mexico, N. Y.
L. E. St. John, Greene, N. Y.
E. Scott, Berkshire, N. Y.
Alburtis Bailey, Cardiff, N. Y.
A. F. Robson, Italy Hollow, N. Y.
A. G. Chapman, Groton, N. Y.
H. N. Waters, Lowville, N. Y.
M. H. Fairbanks, Homer, N. Y.
S. H. Corbin, Fabius, N. Y.
W. P. Hills, Vernon, N. Y.
H. Fox, North Western, N. Y.
Joseph Stetsil, Wampsville, N. Y.
Geo. W. Baley, Ovid, N. Y.
James Lord, Linden, N. Y.
J. O. Bishop, Syracuse, N. Y.
B. R. Doolittle, Baldwinsville, N. Y.
J. E. Lloyd, Preble, N. Y.
M. Stevens, Pennellville, N. Y.
E. F. Wright, Lakeport, N. Y.
M. C. Darrow, Geddes, N. Y.
S. N. Judd, Nelson, N. Y.
D. C. House, Watervale, N. Y.
Andrew Fuller, Collamer, N. Y.
E. B. Beebee, Oneida, N. Y.
G. F. Ransom, Cicero, N. Y.
H. Kingsbury, Lockport, N. Y.
Perry McCky. Spafford, N. Y.
Mrs. W. H. Balch, Oran, N. Y.
Geo. W. Bennett, Vernon, N. Y.

G. F. Hine, Troopsville, N. Y.
Julius Hoffman, Fort Plain, N. Y
N. P. Darby, Mc Lane, N. Y.
D. D. Barnes, Oran, N. Y.
J. Vandervort, Lacyville, N. Y.
W. A. House, Fayetteville, N. Y.
Ira Kinne, Syracuse, N. Y.
C. Isbell, Little York, N. Y.
A. Heinz, Syracuse, N. Y.
G. T. Hoyt, Otisco Center, N. Y.
Rev. E. Van Slyke, Syracuse, N. Y.
Mrs. M. Pinckney, So. Onondaga, N. Y.
Mrs. Julia Helmer, Syracuse, N. Y.
Mrs. Julia Stetsil, Wampsville, N. Y.
Mrs. Geo. Wheeler, Mexico, N. Y.
Mrs. T. L. Hosford, Stafford, N. Y.
Mrs. E. B. Ross, Syracuse, N. Y.
A. Adams, Moravia, N. Y.
J. O. Bender, Fayetteville, N. Y.
F. R. Koons, East Boston, N. Y.
C. M. Goodspeed, Thorn Hill, N. Y.
J. H. Kennedy, Little York, N. Y.
Joel. Kinney, Jamesville, N. Y.
E. E. Greenleaf, So. Spafford, N. Y.
Wm. Atwood, Killawog, N. Y.
H. Segelken, New York City, N. Y.
W. S. Peck, Syracuse, N. Y.
W. S. Ward, Fullers Station, N. Y.
J. H. Martin, Watervale, N. Y.
C. J. Wolf, Marcellus Falls, N. Y.
G. T. Smith, Jonesville, N. Y.
G. Nottingham, Syracuse, N. Y.
J. M. McCaul, New York City, N. Y.
E. B. Rowley, De Witt, N. Y.
G. H. Stewart, Amber, N. Y.
B. C. Ross, Syracuse, N. Y.
W. T. Collin, Fayetteville, N. Y.
O. G. Gridley, Fayetteville, N. Y.
C. H. King, De Witt, N. Y.
C. S. House, Manlius, N. Y.
D. Helmer, Syracuse, N. Y.
F. M. Smith, Syracuse, N. Y.
Ira Barber, DeKalb Junction, N. Y.

President Root called Vice President Dickinson to the chair and then proceeded with the delivery of his address on

Management of the Apiary to secure the most extracted honey.

By L. C. Root.

Whatever the system of managing an apiary may be, the degree of success to which one will attain will depend largely upon the condition of the stocks in spring.

It will therefore be seen that too much attention cannot be given to insure successful wintering. While there is yet much room for study and improvement in regard to wintering, I am persuaded that the necessity for real skill in management occurs more especially during the spring months, than at any other time.

Usually, up to the first of March, bees are in most perfect condition. At about this date, they will begin to waste, whatever the management may be.

During our earlier experience, we thought it desirable to remove them from their winter quarters to their summer stands, as soon after this date as the weather would allow. Experience has proved, that after such early removal they have diminished in numbers more rapidly than when left undisturbed.

We have experimented in putting them upon their summer stands very early, and after cleaning and thoroughly ventilating the wintering room, returning them to their winter quarters. All such experiments have proved unsatisfactory, and with our present experience my advice is that the bees be left entirely undisturbed, until such time as they can begin to gather natural pollen.

Efforts to stimulate breeding at an earlier date will, as a rule, prove a failure. If the conditions are what they should be, bees will at once commence breeding when placed upon their summer stands. Every effort should be made to prevent any interruption to such breeding; on the contrary, it should be aided in every possible manner.

The size of the brood chamber should be made to correspond to the strength of the stock, the entrance should be quite small and all ventilation prevented. In fact, all of the best methods should be practised to secure a populous stock at the earliest possible date. During fruit blossoms I would advise the rearing of an adequate number of queens by the most approved methods, which shall be in readiness to supply the places of those which are liable to fail at this season. It requires some skill to know just how to add the combs for brood and honey, as they are needed. Great care must be taken not to add them until the stock becomes sufficiently populous to demand it. *How many combs are needed during the working season?* This will depend much on the system of management.

We find it most profitable to prevent increase of stocks; our colonies are consequently very populous. We therefore need a larger supply of

combs. Twenty-four combs will be found none too many.

If we practised leaving the honey in the hives until it was capped over by the bees, we should need a much larger number.

Those who keep but a few stocks could extract their honey much oftener, and a smaller number of combs would suffice, but an abundant supply during the flush of the season would be preferable.

There is an impression with many that in order to secure honey of good quality, it must be allowed to be cured in the hive before being extracted. We have demonstrated beyond a possible doubt, that it may be cured equally well afterwards, if extracted before being capped over.

When the largest crop of extracted honey which it is possible to secure from a given number of stocks is taken in best possible shape for market, it will be done by extracting before being capped over, and curing by a process similar to the one I described in a paper read one year ago before this association.

HONEY EXTRACTORS.

Much might be said in regard to the honey extractors of the present day. Many of them will answer as now made, for extracting in a small way, but where a large amount of work is to be done in a short time, there are many desirable points lacking. They are as a rule made of far too light stock. Without exception they have too small cranks which makes it too hard to start the reel.

I am speaking of a four comb extractor, as I consider one for a less number of little value. A brake of some kind by which the motion may be easily and quickly stopped is a much needed improvement. The one who shall invent a process by which four combs may be quickly reversed in the extractor without being taken from the can will be a public benefactor.

HONEY KNIVES.

We have thoroughly tested every form of honey knife, and find none to equal a thin narrow blade with a curved point.

IMPORTANCE OF GOOD QUEENS.

Study well what constitutes a good queen, and see to it that each stock is supplied with one at all times, which is performing her part well. Upon the queen more largely than any other one thing depends our prospect of success. When we have succeeded in securing very populous stocks by the time the heaviest flow of honey appears, our next effort must be to furnish abundant room for the bees to store the honey, either by supplying a liberal number of combs, or by removing the honey sufficiently often.

With our present facilities for informing ourselves in regard to the details of the different points I have suggested, I need not dwell minutely upon them.

Finally, those who will prove most successful in producing extracted honey (as in all other branches of business) will be those who are most thorough in all of the details which bring success.

The convention then took up the topic of

MARKETING HONEY.

Mr. Chapman.— A great many small honey producers will come into our cities and sell their products at 12 to 13 cents per pound which has depreciated the market so that the larger producers are obliged to sacrifice their honey in order to meet the demand.

Mr. L. C. Root. — To me it seems that unless we can do something to make a better market for our honey, we had better make it our business to devise some means to bring forth *smaller* crops than to secure larger ones. I am willing to work for small profits but when it comes to selling our honey for less than we can produce it I am not going to do it. How are we going to sell our honey to the best advantage? By educating the people up to a knowledge of what they want and preparing our honey in the most marketable shape Much may, and must, be done in building up a home trade. Let each beekeeper do all he can to dispose of his honey in his own locality, and we shall not hear so much of a glutted city market.

During the discussion, reference having been made to a New York firm who adulterated honey,

Mr. Segelken, a representative of the firm of H. K. & F. B. Thurber & Co. of New York City, said: We admit that we do adulterate honey and claim that we have a right to do so as long as we comply with the requirements of the law. I do not see why Messrs. King and Aspinwall have such a spite against us unless it be because we do not advertise in their journal.

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

ENTERED AT THE POST-OFFICE, SALEM, AS SECOND-CLASS MATTER.

Published Monthly. S. M. LOCKE, Publisher & Prop'r.

VOL. II. SALEM, MASS., MARCH 1, 1884. No. 3.

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ADVERTISING RATES:—Whole page, $12.00. One-half page, $7.00. One-fourth page, $4.00. One-eighth page, $2.00. Card, $1.50.

Those wishing special rates will please correspond with the Editor.

All communications should be addressed to S. M. LOCKE, Salem, Mass.

(*Continued from p.* 48.)

MR. ASPINWALL. — If Messrs. Thurber and Co. should shake $10,000 in our face they could not get an inch of advertising space in our journal.

MR. SEGELKEN. — Messrs. King & Aspinwall have solicited advertisements for their journal from our firm and I can prove it.

A long rambling discussion proceeded without coming to any definite conclusion.

WEDNESDAY EVENING.

Convention called to order at 7.25 P. M., President Root in the chair.

A letter was read by Secretary House from Rev. L. L. Langstroth, when the following resolution was adopted.

Resolved, That this association unanimously regret that our friend and benefactor, the Rev. L. L. Langstroth, on account of illness is unable to be with us, or to prepare his essay, and that we hope for his speedy restoration to health.

Mr. Dickinson, as chairman of the committee on revision of Constitution and By-laws, made his report which was received and the committee discharged. On motion, a new committee was appointed, with instructions to report at next convention. The committee is as follows, W. E. Clark, I. L. Scofield, L. E. St. John.

Mr. S. M. Locke of Salem, Mass., then addressed the convention on "Our Present Situation."

OUR PRESENT SITUATION.

BY S. M. LOCKE.

WE have assembled together to-day as the representatives of one of the most interesting and important industries of our nation. As such, it behooves us to ponder well the great subject before us, and to give our best thoughts and energies to the solution of the many questions which may be presented to us for our consideration.

A wide field is open before us. The opportunity is ours to sow the seeds of earnest thought that they shall germinate and ripen into a glorious fruition. Never before have I been so deeply impressed with the great importance of the duty devolving upon us as members of this association.

The subject which I have chosen for my theme is one of great moment, and there never was a time in the history of apiculture when there existed a more urgent demand for a thorough and effective organization of our forces than now. The interests of the thousands who depend upon apiculture as a means of support and who rightfully look to our association as their protectors — the proper and legitimate source of information — should and must engage our most careful thought and earnest study.

It has often been said that apiculture in this country is yet in its infancy, and while there are those who, content with the triumphs and advances made within the few short years that have marked the history of American apiculture, will take issue upon this question, yet there are others to whom the accumulation of wealth is a matter of but minor importance; whose minds rising above the sordid greed for gain and self-aggrandizement, reach forward

into the great possibilities of the future,—men whose minds and souls search after and feed upon the hidden treasures of Nature's vast storehouse, who, viewing this matter in its proper light, and wishing to institute and carry out measures through which this branch of industry may assume a dignity commensurate with its importance, agree with me in saying that apiculture in this country is yet in its infancy, and that greater advances and more glorious triumphs than any we have ever witnessed await us, if we but reach out after them.

True, we have had a Quinby, one whose equal as a man of principle and as a teacher — aye, the father of practical apiculture in America — has seldom been found; who gave to us the most thorough and practical work on beekeeping ever written, and one which has proven the foundation of practical apiculture. And we have a Langstroth whose name has been justly immortalized by the invention and early introduction of the perfected movable frame hive; and who has given to us the most beautifully written and scholarly work on apiculture ever published and one without which, for future reference, no beekeeper's library is complete; together with a host of intelligent and successful apiarists, many of whom are numbered among our most prominent scientists. In this connection, too, I would call to mind the inventive genius, the keen perception, the unwearied perseverance and undaunted energy of American apiarists that have made it possible for us to secure to-day thousands of pounds of honey where but a few years ago only hundreds were gathered; have brought to our shores nearly every race of bees extant, and have earned for our country the position of the leading nation in practical apiculture.

Gladly would I speak none but words of encouragement, leaving to others the stern duty of portraying the darker side of the picture; but my interest in apiculture demands that I mention some of the failures that have been made and suggest a remedy. In the past history of apiculture in this country, scientific beekeeping has been almost entirely neglected, until to-day, in this enlightened and progressive nineteenth century, we can boast of but one professor in any agricultural college, who is an acknowledged representative and competent teacher of this industry in its scientific and practical bearing.

More than one hundred years ago the old German bee masters recognized the keeping of bees as a branch of agriculture, and even at that early period at least one apiarist in Switzerland had under his supervision thousands of colonies of bees. Is it not strange that there has been in this regard so little progress in our own more highly favored country?

While there is a steadily increasing demand for competent and intelligent apiarists, yet it is exceedingly difficult to secure their services, and there exists in the United States only one college where the student can obtain a scientific and practical education in this branch of agriculture. True, there are schools of apiculture (so called) instituted by private individuals; and while the novice may obtain a fair conception of practical apiculture in attending them, yet I consider that the idea so frequently advanced that a few brief summer months are all that are requisite to fit and prepare one to manage an apiary successfully is a delusive one, and I feel assured that were those who have attended them to speak the truth, they would agree with me in this statement. There may be exceptional cases, but I am fully confident that there is no well-conducted and thorough institution of learning which is self-supporting; in other words, where the teachers give their time and attention to the proper education of those who may come to them for instruction in this special department, and when we find any person claiming to do this, we may well question the beneficial result to the average student.

Another interesting and important matter is that of a standard hive frame and section; and although prominent authorities claim that we can never satisfactorily adjust this matter, yet I feel warranted in affirming that it can and must be done. Almost every supply dealer in the country has some pet size and style of hive frame or section, the result being that the novice, finding such a diversity of opinion among the "doctors," hardly knows which way to turn or what standard to adopt; and quite frequently after a few years' practice as a beekeeper, and at a needless expense, is obliged to change his hives, frames and sections. The number of either style that is adopted depends not so much upon its merits as upon the price at which the dealer can sell them, and the one who can manufacture them the cheapest has the credit of creating and establishing a standard.

Again, the condition of our honey market is most deplorable, the whole matter being under the control of the commission merchant. There is almost an entire lack of any means whereby we may ascertain the true condition of the honey produced each season or the condition of the honey market; the result being that as soon as the beekeepers secure their crop, they ship it to the commission merchant, glut the market and depreciate the prices. I sometimes think that the beekeepers forget that the commission merchant is sure of his percentage on the sales, no matter what prices the honey brings, and I fear that quite frequently the dealer secures a bonus besides. This is one of the subjects which should receive most careful consideration at the convention, for just so long as the beekeepers neglect to settle this matter, just so long will they give to the middle-men nearly all the profits of the apiary; and, indeed, after paying the supply dealers' bills, the expense of shipping our honey, and the commissioners' percentage, there is but little left with which to remunerate the apiarist for his hard season's work.

I am fully aware that my position will be severely criticised regarding this matter, but I have carefully considered it and am fully convinced that, in placing our honey in the hands of the commission merchant, we destroy the first great principles of business. If I mistake and the system is a correct one, then as "it is a poor rule that will not work both ways," we should be able to purchase our supplies after the same method. But go to the supply dealer and see if he will be satisfied to sell his goods in this way. No! we are obliged to pay cash and should receive cash for our products. The beekeepers must devise some means whereby they can control the honey market. This is by no means a hard task, and I sincerely hope that the convention will take action upon this matter, and if possible, establish a remedy. Again, it is a patent fact that for a number of years the bee journals have failed to fill their mission as representatives of the best interests of the beekeepers, and to-day there exists an urgent and imperative demand for an independent bee journal which shall be published in the broadest sense in the interests of the beekeepers and fully supported by them.

As a concluding thought, I would refer to the condition of our associations. To-day, there is none in the United States which can justly lay claim to the title of a national beekeepers' association, and until such an one is systematically organized and thoroughly established we shall be subject to these troublesome questions to which I have referred. Our associations should be the supreme judges upon all matters of interest and importance to the beekeepers, and in order that they may accomplish the purpose for which they are designed they must be thoroughly organized and systematically conducted. First, there should be a national convention which should be composed of delegates from each state association to act as their representatives. This should meet annually to discuss and decide matters of interest to the beekeeper, and the proceedings should be stenographically reported and printed in pamphlet form. The state associations should meet as often as circumstances require, their duty being to gather correct statements of the condition of apiculture in their respective states, to further its interests as much as possible, and to appoint delegates to attend the national convention, who shall report the condition of apiculture in the states they represent and also work for the interest of the state associations.

I will not attempt to explain this matter more fully, as it would weary your patience, preferring rather to suggest these few hints which may lead you to consider its feasibility, for only by and through these means shall we remedy the evils which assail us on every side.

I am fully aware that I am addressing an association whose founder was one of the most active, whole-souled and thoroughly practical apiarists of America; whose highest aim was to live out the "Golden Rule" and work for the interest of the science he loved so well; who lived far in advance of his time, and only when the light of coming years shall more fully unfold to us his wonderful character and superior worth, shall we truly comprehend how much apiculture suffered when the mind and voice of father Quinby were hushed in the silence of death. But his mantle falling upon this association has so imbued its members with his spirit, that they have ever been true to the principles of right and justice, speaking whenever the interests of the beekeepers were threatened, in words which have resounded

throughout the land, always spoken in the the defence of the right.

It is to you, then, I appeal, my fellow beekeepers, hoping and trusting that you will consider these matters fully and act upon them, thereby hastening the time when we shall boast of as thorough a system of organization as any kindred science or industry, and apiculture be clothed with a dignity which will command respect from its sister industry, agriculture.

The convention then took up the subject of "Our Bee Literature."

MR. BETSINGER. — I love bee literature, and should be pleased to see something about bees in all our magazines. I like a weekly and would like a daily better. The monthlies often contain too much advertising.

MR. ASPINWALL. — There is hardly breath enough to warrant a daily.

MR. CLARK. — I believe the time has come when it is right and proper for this convention to speak out on any subject that interests the future welfare of the beekeepers. The time has come when it is proper to speak on bee literature, and we have a right to discuss any question pertaining to it. I happen to be one of those who have come to the conclusion that there are too many editors who grind their own axes. We want a journal that is filled up with something that is solid, and beneficial to the majority. I do not dispute any man's right to publish a paper so long as he keeps within the law and I have a right to stand by my opinion and we all should in this discussion, and we can do it all in kindly brotherly love. Let us feel that we have something to do in this discussion and I hope that every one will speak out freely.

MR. BENEDICT. — There is one paper in this country "Gleanings in Bee-culture." (I do not obtain much information from that paper, but from *other* bee literature.) The editor thereof claims that his paper has 150,000 readers. Mr. A. I. Root is not a practical beekeeper. He jumps at conclusions. He will give some article that he has to sell an editorial puff, and 5000 of his readers thinking that the article is a good thing send him a dollar apiece, the result being that Mr. Root will be in $5000 and 5000 hard working men will be out one dollar each. I claim that while he may be doing some good, he may do much harm in this way. We want a good thing and want to know that it is such before purchasing it. Editors should be censured in not testing what they send to the public.

MR. ASPINWALL. — I would like to know what the convention thinks of publishing so much matter for the instruction of the novice in beekeeping. I wish to know if they advise an overabundance of it. I would like to know what the convention thinks of publishing every large honey report of which we hear. These I claim are not wholly sent by men who rank as our best apiarists and who support our journals. A great many beekeepers report in such a way as to create an overplus of honey which is detrimental to the best interests of apiculture.

MR. BENEDICT. — While I for one am not disposed to underestimate the good of our bee journals yet, I would acknowledge the power of the pen, and of your associations. I am glad to get instruction and am thankful that we do get instruction from our best apiarists, but there is a certain amount of literature that comes into our journals, which is better that all should not read.

MR. CLARK. — It is not well for a man to have too many axes to grind; what we want is a journal which has something in it that is practical and will help us in our work.

MR. DICKINSON. — It is a fact that the editors of our bee journals publish accounts of enormous profits made by novices in the bee business. The accounts represent great gains from little capital and with no labor to speak of, causing others to rush into the business without careful study. It is hardly fair for the publishers to create such a vast array of beekeepers, there is an over-supply of honey and the profits are greatly reduced. It is for the interests of the publishers to print these glowing accounts as it brings them new subscribers and new customers for their supplies. I consider that this system is wholly wrong.

MR. CHAPMAN. — Only the astonishing successes are reported; we would like to have reports from the same man year after year, but the editors are not anxious to publish accounts of failures.

MR. L. C. ROOT. — Parties who are engaged in the supply business, and do not publish a paper in which to advertise their goods, cannot compete with these who do publish such jour-

nal, It must be evident to all, that the tendency is towards a monopoly of the supply business by the publishers of papers who also deal in supplies.

MR. ASPINWALL.— It is natural for a man to interest himself more largely in that business that pays him the best. Our firm cannot be accused of refusing to publish both sides. Publishers have a right to consult their own interests so far as they do not transgress honesty and morality. I am free to admit that I am in the business to make money. We sell supplies and advertise them in our paper. Bee journals conducted by men who are not also in the supply business have invariably failed.

It is quite as honorable to acknowledge your position as to publish a paper purporting to be free from the supply business while you conduct a supply business at the next door. I might go down cellar and run the supply business while Mr. King remained up stairs and published the "Magazine" and yet this would not change our real interests.

I further claim that our journal (the "Magazine") has taken active measures against adulteration refusing to accept advertisements from those who practise adulteration.

MR. L. C. ROOT.—There is a great deal more to this question than you would think. Why are our bee journals published? The answer to that question means a great deal. I ask the members of this convention whether they believe that the other editors of bee journals would be as honest as Mr. Aspinwall has been in stating his position. I am inclined to believe that Mr. Aspinwall's statement is correct that they publish their paper in their own interests. We must have a journal that is devoted to the best interests of the beekeepers, and to support it will become the interest and duty of every beekeeper in this country. The time has come for us to say of the bee papers that they are not what we wish. They do not meet our wants, we need someting better. There should be a revolution in bee literature. Now we have a journal that is in *no way* connected with the supply business and it is published in our interests. I refer to the AMERICAN APICULTURIST. This journal is certainly better than any other published and we should make it the best journal published on the continent.

C. R. ISHAM said that the test of journalism is brains, he thought the best journals were those whose editors have the most brains and any journal that was *worthy* of support would be supported. All of our journals contain much that is valuable and instructive. Great credit is due to Messrs. Newman and King and Aspinwall for the active measures they have taken against adulteration.

MR. CLARK.— Some of our papers employing the smartest kind of men are not fit to be taken into our family circle.

MR. L. C. ROOT. — The test of journalism is not so much brains as it is principle.

MR. SILAS M. LOCKE. — Mr. Chairman and gentlemen: I would prefer to remain quiet upon this subject as my motives may be misunderstood.

I referred in my paper to the matter of bee journals because I am thoroughly convinced that the interests of beekeeping and the welfare of apiculture demand that we have a journal that shall be in no way connected with the supply trade. I do not stand here to appeal to you either as a convention or as individuals in the support of the American Apiculturist to which allusion has been made.

I have perfect confidence in the intelligence of the beekeepers and know that if it is worthy of their support they will stand by it and I have no fear in this regard.

One speaker in his remarks inferred that editors publish their papers to make money and work for their own interests. Now while I would not dispute their right to do this, yet I claim that there are those to whom principle is paramount to every other aim and object and those who would willingly lose every dollar and sacrifice even life rather than sacrifice their principles. It was the establishing of a gospel which would lead men to live a life devoted to principle that caused our Saviour to "walk alone" and which cost him his life. There are some things that are worth more to us than the mere amassing of a fortune or the success of our undertakings in this life.

I am glad to know that God, not man, is my judge, and, standing in the presence of my Creator, I can truthfully say that I have the interests of this association and the welfare of apiculture at heart.

Secretary House made some appropriate remarks and offered the following resolution which was unanimously adopted.

Resolved, That we, the North Eastern Beekeepers' Association, in convention assembled, do hereby adopt the "AMERICAN APICULTURIST" as the official organ of this Association.

Adjourned until Thursday morning.

THIRD DAY.

Convention called to order at nine o'clock, President Root occupying the chair. The books were opened for receiving new members. After this, Secretary G. W. House addressed the convention on

REARING QUEENS.

BY GEO. W. HOUSE.

THERE is no branch of apiculture more interesting or instructive than queen-rearing. When we look into the laws that govern the production of life, we find that *like produces like*. Then by careful selection of our breeding stock, and a still more careful and scientific method of rearing our queens, with a judicious crossing and recrossing with the very best drones of our different strains and races, we are enabled to bring out and combine the desirable qualities found in the several races and our various strains of bees; thus accomplishing great improvement.

That the queen bee is the foundation of successful apiculture none will dispute. Then our first aim should be the selection of the mother queen or queens. The beekeeper knows well where his best queens are, and is acquainted with their various desirable qualities and traits better than I could describe them here. If you have none that meets your views, it is cheaper and far better to purchase such as we want, even at a cost of fifty dollars, rather than to breed from a queen that does not fill the bill. Above all, I would advise against breeding from Italian queens that have become fertilized by German or hybrid drones. The worker progeny from such queens may be desirable to a few; but each succeeding generation will deteriorate in value, unless the amount of Italian blood be increased with each successive crossing. Italians and Syrians are far different; a cross between these two races produces our very best strains.

Many writers claim that we should not breed from queens more than two years old; in this I must disagree with them. I prefer a queen at least three years old, and older, if they retain their vitality. How can we fully test their longevity, endurance and wintering qualities when discarded at the end of two years? Some of the finest queens I ever saw were superseded queens reared to take the place of a five year old mother.

I will not discuss this point any further here, but will proceed to give what I claim to be the *best*, as well as the most simple method of rearing queens I have yet learned. To be better understood I will first describe the hive and its arrangement; on this hinges the entire success of the method I shall describe.

The hive is constructed for eleven frames $11\frac{1}{4} \times 12\frac{1}{2}$ inches outside measure; but instead of using eleven frames we use only eight, and two wide frames containing eight $5\frac{1}{4} \times 5\frac{1}{4} \times 2$ inch sections (four in each wide frame), placing one of these wide frames on each side of the eight brood frames. These wide frames are made so that they go inside the hive easily, and on one side of each nail a sheet of "Jones's" perforated metal, covering the entire side of wide frame.

The colony having our best queen (with her wing clipped) being in such hive, we will proceed with the manipulations of the colony for the end in view. After the fruit trees bloom, this colony should be stimulated by feeding a little honey or sugar syrup each day, so as to keep the queen laying in her full capacity.

The same end may be accomplished by giving frames of solid brood about to hatch, taken from other colonies; the *object* being to have the hive crowded with bees as early as possible; thus inducing the swarming fever. As soon as the colony has constructed queen cells that are nearly ready to be sealed over, preparatory to swarming, open the hive and take four of the eight frames having the most and the best queen cells thereon, and place them to one side of the hive, after removing the two wide frames. Now take the remaining four frames and destroy all queen cells thereon and place to the other extreme side of the

hive. Now place the two wide frames in the centre of the hive, with the perforated metal sides towards each of the two brood nests, thus dividing the hive (so to speak) into two compartments, the queen being placed in the side containing no queen cells. We now close the hive and await results. The bees go all through the hive at pleasure; but the queen is confined to four frames.

The colony, already affected with the swarming fever and the queen restricted in her egg-laying capacity, will, in one or two days, start new queen cells.

The bees will complete and nurse the fine natural cells on the four frames in the other side of the hive. Now a day or two before these first constructed cells are ready to hatch (about eight days), open the hive and cut out and use these cells; at the same time take the queen from the other side and place in the side from which you have just removed the cells. On the four frames from which we have just taken the queen, we will find a lot of very fine natural queen cells about ready for sealing.

The queen, now having empty cells, will immediately go through the four frames and deposit eggs in all vacant cells, when new queen cells will be constructed. Just before the cells on the other side of the hive are ready to hatch, cut them out and use and put the queen on that side. Proceed in this way as often as the queen cells mature, which you will find to be about every seven or eight days.

In this way our cells are all reared in very powerful colonies, in a perfectly natural way and under the swarming impulse, and finer or better queens you never saw.

If we do not let any young queen hatch in this hive, nor allow a cell to be capped over in the part containing the queen, the colony may be kept building and rearing queen cells until late in the season and the colony will not attempt to swarm; at least such has been my experience.

The section boxes in the wide frames should be removed as often as filled and replaced with new ones.

I offer this paper for your consideration, hoping that I have assisted in giving new food for thought and discussion.

MR. BETSINGER. — I believe in rearing queens easily. It makes little difference how we rear our queens if the colonies are brought into a swarming condition. There are several grand points in the address. The experience of the past together with our present knowledge will soon culminate in a perfect mode of rearing queens. We are coming nearer to it every year.

MR. ISHAM. — Experience teaches me that queens reared in a natural way are much better than those reared by artificial means.

MR. BALCH. — I try to rear queens for gentleness and long life, — some seasons are poorer than others for this purpose. In rearing queens I follow the natural course of the bees as nearly as possible.

MR. ASPINWALL. — I think that the practice of rearing dollar queens has been injurious to the beekeepers in general and that the practice of rearing and selling untested queens is a great detriment to any man who goes into the queen rearing business, and it has a tendency to lead them to sell worn-out queens as untested queens. It is all very well to say you can judge of the worth of a queen by her color, size, etc. I claim you cannot tell. A queen that will produce beautiful workers will not always duplicate herself. I first decide upon what queen I wish to breed from, and when the eggs are about one day old, I prepare my colony which is to rear the cells selecting one with many young bees, and removing all the eggs, brood, etc.; leave them a day, then give them a card of prepared brood in which this strip of comb containing the eggs has been secured. Let the eggs hatch and then destroy, *not* every *other* one, — but destroy two and leave one. As quickly as destroyed I turn the rest down so there will be plenty of space between the cells. About the sixth day, or after the cells have been sealed, I examined the comb to see how many queen cells I have and which are the best. I generally destroy the poorest when within two or three days of hatching.

MR. BALCH. — I agree partially with Mr. Aspinwall. I also agree with Mr. House. I want no queens for breeding purposes that are less than three years old and older if they retain their vitality. I want to see the progeny of their daughters and granddaughters.

MR. LOCKE. — This is one of the most important subjects to the honey producer. The question is, How can we produce the queens that will give the

best results? I want my drone mothers from just as good stock and just as pure as the queen mothers. After selecting the queen mother, I try to bring her colony as near the swarming point as possible as well as the colony with which I wish to rear the queens. In about three days before I wish to use my eggs, I confine my queen in a nucleus giving her an empty comb at night, marking date upon top bar of frame. When these eggs are just three days old I take the colony which has been selected to rear the cells, shake the bees into a swarming box and confine them for twelve hours giving them neither comb nor brood; and just here let me state that I claim that the preparation for cell building which the bees make while confined in this box, better fits them for the work than any other method and is a matter of vital importance in the production of first-class queens. Just before evening I take an empty hive, placing combs in the same containing pollen and honey, into which I insert strips of prepared eggs and give to this hive the bees that have been confined in the swarming box.

Mr. L. C. Root, I believe, advocates keeping the bees confined in the hive for twelve hours after the brood has been given them, but we think that giving the brood to these queenless bees at night, and leaving them quiet until morning, answers the same purpose.

I find no trouble in having the cells spaced evenly where every other egg is destroyed provided the strip containing the eggs is arched so as to spread the points of the cells. When you find two queen cells built close together take a warm knife, draw it through the wax between the cells cutting down to the cocoons being careful not to cut into the cells; then take the latter between the thumb and forefinger of each hand, rolling back and forth carefully until they separate, being careful not to crush or bruise the cells, after which place a patch of comb foundation over the exposed portion of the cocoon with a warm knife; in this way every cell may be saved. After the cells are just eleven days old, cut them out and place them in a queen nursery putting this into a colony prepared to receive it. Most beekeepers will know how to care for the cells from this time out.

I would however urge upon every beekeeper the importance of careful selection and breeding of our queens as I consider the interests of the producer are being injured by the careless and unscientific methods advocated by many.

The next paper was then read upon

Wintering Bees on their Summer Stands, and in the Cellar.

By C. G. Dickinson.

This topic continues to hold its place among others annually presented for discussion, and your humble servant feels no little embarrassment in presenting this subject to so many who have fathomed its depths, and have established theories on that firm basis, which never yields to argument. "Successful Wintering" is the grand "corner stone" of apiculture. Without this, the superstructure is a worthless ruin, where we erect a monument, bearing the truthful inscription, "Blasted Hopes." Who can say "there is a royal road to wintering?" Few, if any.

Apiculture, as a science, may be compared to astronomy which teaches us of suns and systems, of planets and their satellites, of fixed stars, and stars of greater and lesser magnitude, where "centre systems round centre systems roll." The *Suns* of apiculture whose satellites we *all* are, have left us their undying name and their thoughts, as a rich and precious legacy, after their long years of toil, in which they delved for the hard earned and undeveloped facts. *They* gave these facts to *us*, to *them we* give the fulness of our *grateful hearts*.

We see, here and there, a planet, around which, with unerring accuracy, revolve its satellites, as constant and more numerous than those of Jupiter.

Let us interview one of these planets. He has the best strain of bees extant. They are bred for hardiness, prolificness, and honey gathering qualities. He has the largest average yield of comb honey each year, and every body knows it. "How do your bees winter generally?" we ask. "Well! hem! I — to be frank with you, they do not winter quite as well as I could wish. I always double up weak colonies in the spring though; hence the small number, I have in the spring, is not owing entirely to wintering." "Do you winter in the cellar or out-of-

doors?" "I *try* it both ways, so as to hit it somewhere. Some of those out-of-doors I ventilate at the bottom and some at the top, and I ventilate my cellar in the same manner, as fancy dictates." "Have you ever met with any severe losses in wintering?" "I believe the lowest my apiary was ever depleted by wintering, was from sixty to one." "You don't say?" Yes, well, do you attribute these disasters in wintering to bacteria, pollen, or lice? and with an answer born of despair, said, I cannot say.

The satellites of this planet generally shed their soft mellowed rays about us immediately at the close of a mild winter, but at other times are in partial or total eclipse. But this class of apiarists present a hopeful future in their varied experiment, and a visit to them is much more satisfactory, than a visit to a "fixed star," when egotism confronts you at every turn. He winters or attempts to winter in the old box on the summer stand, without protection, and asserts that it is the only safe method. He never reads or experiments and believes nothing you tell him. You leave in disgust, thankful that all men are not constituted alike.

Then we turn our longing wishful gaze upon the stately, august, pretentious, star of the first magnitude, as it swings through space. He has the best of everything, of course, but not being capable of wintering his bees successfully in this latitude, he employs some colored gentleman to winter them for him, down in Florida.

This is what we call high toned wintering. Then there are the comets of apiculture, that remind us of approaching dissolution, that is, the dissolution of long established facts, as they discourse to us about the advantages of fertilization in confinement, or attempt to refute the universally accepted phenomenon of parthenogenesis by queen bees. They don't *winter* any bees, as some one generally gives them one to experiment with in the spring. Thus far our visit to these celestials has been unrewarded.

We will make our next visit to the distant unknown nebula, that is shedding its pale lustre upon us from year to year, almost unnoticed.

Here we find a tiny star speck that is the unconscious centre of a great system. Quiet, unpretentious, little known outside the circle of his few appreciating friends, he never wearies you with long columns of theory in print, but can give you a sensible logical answer to questions asked. The amounts of his immense honey crops are never published as an inducement to lure the inexperienced to embark in the business, for he neither edits a bee journal, or has bees or supplies to sell. He invariably winters his bees, and does not think it necessary to try every plan he ever heard of, so to be sure and hit it somewhere.

It is not a pleasant task for one to submit their views to pass in judgment before such an array of talent and experience, as we have before us to-day, and with your permission I introduce to you the gentleman of the nebula who will talk with you a few moments upon the subject under consideration. He says:

"I have lost but few bees in wintering. I have wintered on the summer stands and in the cellar with equal success, and had I a convenient, suitable cellar near my apiary I should prefer that mode of wintering; but in the spring they should be transferred from the cellar to a chaff-packed hive on their summer stand, being careful to return them to the stand from which they were taken in the fall. Whichever way they are wintered they should never be disturbed from their repose unless actual necessity demands.

The advantages of packed hives are as obvious in fall as in spring, and the bees should be securely protected from the first hard frosts in fall, when they are numerous and many are apt to be left outside the contracting cluster. They should be transferred to the cellar as quietly as possible, which can be best done with the mercury a little below the freezing point.

The cellar should be kept perfectly dark, with an atmosphere dry enough to prevent the condensation of vaporous exhalations. Proper ventilation, and a temperature of from forty-five to fifty degrees Fahrenheit, are necessary to secure this condition of the atmosphere. This will vary in different cellars, as some are very damp, and some dry, but I am of the opinion that a cellar may be made too dry. Avoid any direct draught of air among the bees, as that will cause them to be restless, but a ventilating pipe from the top of the cellar, of sufficient size and length to remove the noxious gases is a wise provision. The necessary temperature may be maintained by the use of a fire in a compartment of the cellar, enough remote from the bees

to prevent any sudden change being felt by them.

Another and less troublesome method of securing a comparatively even temperature is to pack a well protected compartment of the cellar as full of bees as possible. Here they generate the required heat. But this method has its objections, as this arrangement thus precludes the possibility of a general examination should such be necessary. And in our latitude with its prolonged periods of intense cold, no natural heat will be sufficient to maintain that even temperature which the use of a fire secures to us.

If, when spring approaches, and brood-rearing has well commenced, you find the temperature of the cellar above fifty degrees, and the bees roaring and uneasy, lower the temperature by the use of ice or snow placed on racks or bins in the top of the cellar, as near the floor as convenient.

Keep thermometers hanging in the cellar that will show you at any time the temperature at the top and bottom of the cellar, both among the bees, and in the compartment in which the fire is used.

The highest temperature should be maintained during the early part of the winter, and can be reduced to that degree which necessity may suggest.

Some apiarists have related disastrous experiences caused by raising the temperature of their bee repository to conform with some well-grounded theory they heard advanced at our conventions, and being too anxious to test the same have misapplied it in mid-winter.

If a high temperature causes your bees to lie out on the sides of their hives in the early winter no harm is done; but be sure that temperature is the cause.

Let no connection with the floors, walls or partitions, surrounding your bees, leave a possibility of their receiving the slightest jar, and mice and rats should be thoroughly exterminated from the cellar before the bees are put in. Vegetables should not be stored near the bees, as the temperature required for each is incompatible, and the noxious gases from decayed fruits and vegetables are detrimental to the bees. The bees should remain in the cellar until the soft maples bloom, but may be removed earlier if placed in suitable chaff hives on a fine, sunny day, with the mercury at or about fifty degrees, Fahrenheit, in the shade, and the air is still. No matter if snow covers the ground, few will be lost. Caution is necessary that the colonies may not mix and some of them abandon their hives. The better time to remove bees from the cellar is in the night, but this is only safe later in the season. I have removed bees from the cellar to chaff hives, in February, with satisfactory results. Bees in chaff hives, during the early spring, can easily be supplied with water and artificial pollen which is a great advantage."

But as this more properly comes under the head of "Spring Management," the gentleman from the "Nebula" declines any further remarks on "Cellar Wintering," and closes with a few remarks about wintering on the "Summer Stands." He continues:

"As suitable cellars for wintering bees are a convenience possessed by few, the next best method of wintering bees is in hives protected by chaff, and is even a *better* method than wintering in the cellar, and 'springing' them in a single walled hive on the summer stand, or allowing them to remain unprotected, in the fall, until they are removed to the cellar. But, says one, 'these chaff hives are expensive.' True; but they are a necessity, and if we are allowed but one, give us the chaff hive in preference to the cellar. I advise all to keep within their means, in the matter of constructing chaff-hives, as well as everything else. Temporary chaff hives can be constructed very cheaply from old boards or dry-goods boxes, but require more work to pack and unpack them each season, and it is quite difficult to make the tops water-tight. So I advise the construction of permanent chaff hives, as soon as the expense is warranted by previous incomes from the bees, and then make a hive of which you will not be ashamed; and not such a hive as our friend H. of western fame advises, made of rough boards, so constructed that the winds can remove the packing to the four corners of the earth, and leave you the empty box to pile away every spring.

My hives are made of pine, five-eighths of an inch in thickness after being planed on both sides, and are well painted. They have a gable-roof, made of two wide boards with a ridge board. This roof sheds the water to the sides of the hive, and not in front, for it to spatter and freeze in the entrance. It contains between it and the

inner hive four inches of wheat chaff from beardless wheat, and on top a box with a cloth bottom, containing a depth of from six to eight inches of the same. The cover is hinged, and is prevented from passing beyond a right angle with the side of the hive when raised. The cover has a one and one-half inch ventilating hole in each end, near the top, that can be closed at pleasure. The entrance is three-fourths of an inch in depth, and from three to five inches in length, and can be contracted, as change in temperature or size of colony may demand. The apiary should face the south in winter, and the entrance to each hive should be protected from light, and from wind and storm, by a short board leaned against the front. A high tight board fence should protect the apiary from the prevailing winds, and where drifts of snow are apt to cover the hives, care should be exercised in clearing the entrances and shovelling the loose snow up about the hives, and thus prevent the snow from stopping the entrances. No better place can be found to winter bees than under a large snow-drift, when the entrance is clear and is so arranged that mice cannot enter. But there is sometimes danger of a succession of sleet and rainstorms, causing crusts to form that might exclude the air, and cause the bees to smother. We cannot maintain a temperature, so high and even, on the summer stand, as we can in the cellar, unless it be under the snow-drift. Hence, I rely more upon absorbents, in case of necessity. A two-inch chaff-packed frame, covered with cloth, and filling the hive snugly from end to end, is placed in one side of the hive after removing two combs.

If continued low temperature prevents the necessary evaporation and causes the exhalations to condense before rising to the upper chaff, this chaff-frame absorbs much of it that might otherwise condense on the combs and produce mold. Easy access to every comb in the hive should be provided for the bees, either by passage-ways cut through the combs at each end, or by sticks three-eighths of an inch square, laid on top of the frames in pairs, so arranged that the blanket or piece of carpeting cannot obstruct their passage over the frames. Some sticks, so arranged as to form an arch over the tops of the frames and leave a free warm space for the bees to cluster, would be better than the square sticks. Should a warm sunny day, in mid-winter, cause the bees to become uneasy, remove the standing boards from the fronts and allow them to fly, after arranging the alighting boards. If the hives face the south, the bees can fly with safety when the mercury is at fifty in the shade, if there is no wind; but if the bees are quiet, it is better to let them remain so.

Poor wintering is the cause of 'spring dwindling.' We hear men say, in April: 'I think my bees wintered finely, for I have not lost a colony;' but how were they when the fruit bloom came? Were they strong and vigorous and able to store a quantity of honey, or were they weak and listless, with barely enough bees to cover the small patch of brood they had? Bees, properly wintered, never have moldy or damp combs; their hives are dry, and the bees will speck the snow more or less in their first flights in spring. I know this is contrary to the "dry fæces" theory, but I would as soon have my bees afflicted with dysentery as acute constipation. So long as my bees winter well without voiding dry fæces, so long I shall refrain from attempting to cause such an abnormal condition. Bees very seldom winter well on poor stores, and there is a difference of opinion as to what constitutes poor stores. I care not how much pollen they have, if it is not mixed with the honey, where the bees are obliged to take it involuntarily. Much honey contains pollen particles, held in suspension. Such honey is more frequently gathered in seasons of scarcity, from the flowers that yield both honey and pollen. The conformation of these flowers renders it impossible for the bees to extract the nectar, without becoming covered with the pollen.

This pollen becomes mixed with the honey, much more than it does when bees are gathering honey or pollen separately. I believe this to be the prime cause of honey becoming deleterious to the bees, and the fact that disastrous winters are more apt to follow a season of scarcity, makes this theory the more tenable. But it does not follow that all pollen should be eliminated from the hive, to winter with safety. On the contrary, I believe pollen to be as essential, as it is natural, for winter stores, if it is not too old, and if the honey, covering it, is wholesome.

By feeding sugar syrup for winter stores, we can remove the possibility of any injurious effects from pollen, our

bees will live long, and we shall be happy."

At this juncture the gentleman from the Nebula bade us good day and God-speed, as we assured him that none of his remarks should be published for the criticism of planets and stars of the first magnitude.

This paper was followed by discussion.

IRA BARBER. — A cellar to winter bees in safely, should be warm enough to keep vegetables in without freezing, and free from currents of fresh air from the outside, as nothing will arouse a lot of bees so quickly as a current of fresh air, either warm or cold. The room should be ventilated from the top. I find a three-inch pipe is sufficient to carry off all impure air from a cellar where 200 colonies are kept. I prefer a warm damp cellar to a dry one, for a long pull. Bees should be placed in the cellar before much freezing weather.

I prepare my bees for winter when the honey is taken off in August, by putting on a good cloth and top board so that they may have ample time to glue all fast. In placing them in the cellar, I use caps taken from the hives, to place the bottom tier on, which brings them about one foot from the cellar bottom, and pile them in columns, four high, just as they come from the yard, and as close together as they can be placed. The bottom hives should be raised up from the bottom board ½ inch. The fly holes of all the hives are left open. All should have a sufficient amount of honey to carry them safely through the winter, so that when all are in, the room can be closed and left without being disturbed until it is time to set them out. My bees are twenty miles from home and I do not see them from the time they are put in the cellar, until I take them out which is usually the latter part of April, or when the bees can get the first pollen. I think the reason why so many meet with poor success in wintering in the cellar, is owing to their going into the cellar frequently to examine their bees. It is a bad practice, and should not be done. My cellar is under a dwelling, and is 17×19×7 feet; a family lives in the room above in which a fire is kept. The bottom of cellar is composed of rock and clay, the walls are solid masonry and 2 feet thick. At times there are 6 inches of water in the cellar. It does not injure the bees in any way. No fresh air is admitted into the cellar. The ventilating pipe enters the cellar through the window, thence up the outside 24 feet high.

I never tested the temperature of this cellar but twice, once when I carried the bees in, when the thermometer showed 65° inside and about 40° outdoors. The other time was when I carried them out; the thermometer then marked 90 degrees inside and 60 degrees outside. I do not know as a high temperature is necessary: but I do know that my bees winter perfectly and have done so for nearly twenty years. With this high temperature I find the bees at times clustered on the outside of hives as they do in July but they seem to be in a sort of semi-dormant state, and when carried out become bright and lively and in a few moments are all right. Some few colonies that got out of honey crawled up into the next hive and joined that colony. I find but a small portion of them breeding when carried out in the spring. My losses do not average more than one per cent. I have 225 colonies in this cellar.

MR. BAIRD.—I winter my bees the same as Mr. Barber. I will vouch for what he says. Mr. Barber makes apiculture a specialty and his only business, and I do not believe there is a man in this state who has better success. There were several other bee-keepers in that locality who winter their bees with equal success. I tried the temperature in my cellar but once, then it was at 45 degrees. I think the thermometer outside was about thirty degrees below zero this day I tested it.

MR. BETSINGER.—There is something peculiar about this matter of high temperature. I agree with Mr. Barber in the main, but I think there is some mistake about the high temperature. I think it lower than Mr. Barber thinks for. The temperature should be even, the air should be changed every few hours and this should be accomplished without admitting a fresh current of air, or allowing the temperature to change more than two degrees up or down. Our bees should be disturbed as little as possible; in my opinion it is this disturbance that creates the mischief.

MR. L. C. ROOT.—My experience favors in-door wintering. In our cellars we prefer a mat over the top of our hives instead of allowing them to be sealed tight without a porous cover.

We cannot keep our bees quiet with a higher temperature than 48 degrees.

MR. LOCKE.—Mr. Hoffman of Fort Plain winters his bees quite similar to the method described by Mr. Barber with equally good success. The shop in which he manufactures his supplies contains both a planer and a circular saw and is directly above his bee cellar; and has in connection with it in an adjoining room a horse-tread power. All the noise in running this machinery and making his hives, etc., in no way affects his bees. The hives set on an earth bottom in the cellar, and are in no way connected with the walls or ceiling over head. Many times during the winter the water runs through his cellar, but it is free from that cold clammy temperature which is a great detriment to bees. The only cellar ventilation he has is an upward one. His hives are closely covered with an enamelled cloth. In the early part of the winter he likes a temperature between 45 and 50°. In the latter part of winter it runs as high as sixty degrees when the bees cluster on the outside of hives.

The following subject was reopened for discussion:

MARKETING OUR PRODUCTS.

MR. BACON.—In regard to marketing our products I will give some of my experience. Speaking of those small producers selling their honey at 10 to 12 cents per pound as was stated yesterday, shows that they were very anxious to dispose of it. I care very little for such producers. I was very much discouraged in selling my honey in such markets. I will suggest to those who are in the business that they find a good market, place their honey there, keep it pure and place their mark upon it, get the confidence of the dealers and give them to understand that they are selling only the pure article.

MR. CLARK.—I am not opposed to selling honey to dealers but think that we could create a greater interest with our own dealers at home. The question is how shall we create a larger sale. If the consumers cannot get pure honey they will go without it. I am opposed to selling honey to any firm that adulterates our products. If we get our honey in a good marketable shape we shall have no trouble in marketing it.

MR. BACON related his experience in selling honey, and said if we would brand our honey with labels containing our name and address, we should have better results. If our honey was all sent to New York or some other market, do you not see that the market would be flooded and thus discourage the dealers who purchase honey? I believe we should dispose of a good share of honey in our home markets.

Our western friends claim that they produce honey successfully and in proper marketable shape without separators.

MR. J. VAN DEUSEN.—While on a western trip, I saw some honey which had been on exhibition, was claimed to be a choice article, and said to be produced by W. Z. Hutchinson without separators. Now this honey would not be considered in good marketable shape in our eastern market, and was a marked proof to me of the necessity of separators.

This question was further discussed pro and con by many others who agreed with what had been said.

At this point the following resolutions were adopted:

Whereas, Mr. H. Segelken, a representative of the firm of H. K. & F. B. Thurber and Co., has acknowledged before this convention that the firm he represents adulterates honey put up in glass jars:

Resolved, That this convention strongly censures Messrs. Thurber & Co., for indulging in such a practice, and urge beekeepers to shun *them* and *every other house*, or *individual*, who indulges in the adulteration of honey.

Resolved, That these resolutions be printed in at least six different papers, selecting those that have the largest circulation, and the most influence.

After some further discussion, Mr. Mc Caul of the firm of Mc Caul & Hildreth, addressed the convention in regard to placing their honey upon the New York market giving some valuable hints in regard as to what that market demands, and gave some valuable advice in regard to the beekeepers of New York State in the way of protecting their interests.

The matter of exhibiting our products at the "American Institute Fair" in New York next fall, and as an association exhibit, was discussed at some length when it was voted that we send samples of honey to Mr. J. M. Mc Caul of New York who agreed to exhibit it at said fair. Forty of the members present agreed to send samples of ten

cases or crates each, for said exhibition, each member placing his mark upon his exhibit.

Adjourned until 1 o'clock P. M.

AFTERNOON SESSION.

Meeting called to order at 1.15 P. M. Pres. Root in the chair.

Some time was given to a rambling discussion on various topics.

After this the various committees reported and were dismissed.

The Committee on Exhibition reported as follows:

MESSRS. G. W. STANLEY & BRO. exhibited the U. S. standard honey extractor which was very fine, also some smokers which were well made.

MR. L. C. ROOT. "Quinby's New Beekeeping" specimens of extracted honey both candied and that which had been artificially evaporated which were very fine. Also the "Quinby smoker" which is well known and needs no comment.

SILAS M. LOCKE. Specimens of the new races of bees. Mr. Alley exhibited "Locke's new bee-feeder" and Alley's "drone trap" which we can recommend to the beekeepers.

J. MARTIN. One case of very nice comb honey.

S. MOWRY of Syracuse. A very convenient case for holding one pound boxes with perforated separators.

I. L. SCHOFIELD. Honey knives and paper boxes to hold sections of comb honey now so popular in the New York market, and which dealers advise honey producers to use in order to obtain the highest market price.

MR. C. R. ISHAM, of Peoria, New York, and MR. VAN EATON, of York, N. Y. Specimens of their wood separators which possess all the advantages claimed for wood over metal for this purpose.

I. C. NEWMAN & SON and MR. BENEDICT. Comb honey racks filled with sections, which were very convenient and handy to manipulate.

J. VANDERVORT. Foundation mills for the manufacture of comb foundation, which were fine specimens of mechanical genius, especially the one with six inch rolls; and we believe the only machine adapted to the manufacture of foundation with natural base running twelve square feet to the pound.

KING AND ASPINWALL exhibited their bee smoker.

PROF. A. J. COOK. The "Guide or Manual" of the apiary.

MESSRS. J. VAN DEUSEN & SONS, CHAS. DADANT & SONS, J. VANDERVORT and F. C. BENEDICT exhibited fine specimens of comb foundation, the workmanship being perfect. That exhibited by the three latter having natural base and being especially adapted for use in sections for surplus honey.

J. W. TEFFT, Collamore, New York, exhibited a bee hive with some new features which he calls the "Ideal" and which attracted much attention from the beekeepers present.

The above is respectfully submitted

Committee { W. E. Clark, C. R. Isham, I. L. Schofield.

COMMITTEE ON RESOLUTIONS.

Resolved, That a vote of thanks be hereby tendered to all the essay writers.

Resolved, That the thanks of this association are due and are hereby tendered the representatives of the "Journal," "Evening Herald," "Morning Standard" and the "Courier" for their extended notices of this convention, the publication of our proceedings and other courtesies shown us.

Resolved, That the association do hereby tender a vote of thanks to our worthy President, "Mr. Clark," for the dignified and able manner in which he has presided over our meetings.

Resolved, The thanks of the convention be voted the stenographer, Miss L. Pearl Moulton, of Fayetteville, N. Y., for the faithfulness shown in her arduous labors.

Resolved, That a vote of thanks are hereby tendered the common council of the city of Syracuse for the use of the City Hall and also to Mr. Costigan, the janitor, for his attentiveness and the many courtesies shown us.

Resolved, That we the *Northeastern Beekeepers' Association* attend the next convention of the *North American Society* at Rochester next September as a committee of the whole, and in a body.

Resolved, That this association are pleased to note the presence of an unusual number of ladies during the sessions, and trust that they will, at our next convention, favor us with their presence

All of which is respectfully submitted.

Committee { C. G. Dickinson, Geo. W. House, J. Van Deusen.

REPORT OF COMMITTEE ON QUESTIONS AND ANSWERS.

1. What are the first symptoms of foul brood?

Answer. The cappings of the brood are dark and shrunken.

2. Are the bees any more liable to attach the comb to wood separators than to those made of tin?

Answer. No.

3. What are the advantages and disadvantages of making colonies queenless to prevent swarming and for obtaining comb honey?

Answer. This requires too long an an answer for the question box.

4. What is the best size of frame for our northern climate, all things considered?

Answer. Two for the regular standard Langstroth and one for a deeper frame.

5. What is the effect of early and judicious stimulating of bees with thin food?

Answer. Good, if properly done.

6. Are queen bees more profitable when reared in full colonies, and if so, why?

Answer. Yes.

7. What is the effect produced by the rearing and sale of dollar queens?

Answer. Bad.

8. If bees become uneasy in the cellar at a temperature of 40°, will giving water at the entrance of the hives quiet them, and will it induce breeding if not already commenced?

Answer. No.

9. Is the poison of bee-stings injurious to the health of the person receiving it, especially if he is subject to erysipelas, and is it liable to produce feelings of numbness or paralysis in the arms?

Answer. No; we think not.

10. What is the best method of rearing queens?

Answer. Buy "Alley's Book on Queen Rearing" for answer.

11. Which is the most proper to say, work out, draw out, or work up, comb foundation?

Answer. Work out.

12. Which is the more laborious, the production of comb or extracted honey and which pays the better?

Answer. Question discussed.

13. Which is the better race of bees, all things considered?

Answer. The improved American Italian bees.

14. I have twenty-four stocks of black bees; at what time, being inexperienced in this matter, can I Italianize with the best results and the least difficulty?

Answer. Just as the heaviest flow of honey is about to discontinue.

15. What is the best style of dipping tank for sheeting wax to roll into foundation?

Answer. 4 × 10 × 24 inches.

16. Which are the better for raising hybrids, Italian queens mated with black drones, or black queens mated with Italian drones?

Answer. Italian queens mated with black drones.

17. Can foul brood in its early stages be detected by smell?

Answer. No.

18. Is the shallow brood-frame preferable to a deeper one? If so, what are its superior qualities?

Answer. Two yes, and one no.

19. Who was the first American bee-keeper who used the movable frame-hive in large numbers and at what date?

Answer. The late Quinby.

20. Will it do to feed bees with maple sugar in the spring, instead of honey or syrup, and in what quantity for the best results?

Answer. Yes; feed it thin and warm to stimulate breeding.

The above is respectfully submitted.

Committee { L. C. Root, I. L. Schofield, R. R. Rians.

On motion of Mr. Dickinson, the following was unanimously carried:

Resolved, That this association feels indebted to the Secretary for his efforts in advancing our cause, and that the sum of twenty-five dollars be donated him as part remuneration for his valuable services during the past year.

Thereupon Secretary G. W. House thanked the association for their appre-

ciation of his services and said, as I am interested in the welfare and interests of this association I will hereby donate twenty dollars of that amount to the association as a fund towards the payment of a stenographer next year.

Some appropriate and effective remarks were made by members of the convention, when a vote of thanks was tendered Secretary House, for his kind and very liberal offer and the interest he has shown in making the association what it is at the present time, the largest and best in America.

Mr. Aspinwall, as chairman of committee on "analysis of honey," very kindly offered to pay all expenses for a chemist in analyzing honey, for which the convention tendered him a hearty and sincere vote of thanks.

A letter, received from a citizen of the city asking if the association had any *facts* to show the comparative value of honey and cane sugar as an article of human food, was read by Mr. Dickinson.

The question was discussed by Mr. Aspinwall, Mr. Betsinger and others, and then referred to the committee on analysis.

Mr. Aspinwall thought wax was indigestible. Mr. Locke said he could not see that any more injury was done by eating wax than by eating crystal blue and the other adulterants with which many of our sugars and syrups were filled.

Mr. Warner thought the association should procure some pamphlets or circulars similar to Newman's "*Honey as Food and Medicine*," and circulate them broadcast.

Messrs. Root, Betsinger and others, agreed with Mr. Warner, when the following resolution was adopted.

Resolved: That Geo. W. House and S. M. Locke be appointed a committee to procure designs and prices for circulars to be printed and circulated with our honey, instructing the public of the healthfulness of honey—both as food and medicine—and report to the members of this convention.

The question of separators was again taken up and discussed by Messrs. Isham, Root, Snow, Betsinger, Waters and others, after which the following was unanimously adopted:

Resolved, That it is the opinion of this convention that separators are indispensable for the production of comb honey in sections in good marketable shape.

Resolved, The time of meeting for next convention be left to the executive committee.

Secretary G. W. House was made a committee on arrangements for next convention.

Adjourned to meet at Syracuse, N.Y., upon call of the secretary.

G. W. House, *Sec'y.*

BEE-CULTURE IN THE SOUTH.

By G. W. Demaree.

As far as my observation extends fruit trees in the south never yield more than enough honey to keep brood-rearing going forward during the period in which they are in bloom. This I think is owing to the fact that our fruit trees open their flowers so early in the spring, and at a time when the weather is too fitful to give better results.

Hence if the hives are not pretty well provided with old stores of the previous season, our bees are hardly self-sustaining from the time the earliest bloom makes its appearance till the poplar and locust open their flowers.

This being the case it will be seen that when the first shower of nectar comes from the locust and poplar, it comes to empty hives, and at a period so early in the season that it is hazardous to put the surplus arrangement in position; and whether the surplus arrangement is in place or not, the bees persist in cramming the brood combs to their utmost capacity, leaving the queen without a cell to ply her occupation, and this at a time when brood-rearing is of the greatest consequence. The only remedy is the judicious use of the extractor. I say *judicious use of the extractor*, for it required a good deal of study on my part to find out what to do

and what not to do during this critical period. A wholesale "slinging out" is worse than letting the bees have their own way. The combs, which contain brood, even if the cells not containing brood are full of honey, should not be disturbed at this early period, and only the combs which are next to those which contain brood should be kept emptied by the extractor. If this is done the young bees will see that the queen has room, as they will move the honey from the cells adjoining the brood and store it in the empty combs. Of course it will not do to wait for the honey to evaporate in the hives in this case, but it is not best to empty any of the combs more than once. This can be avoided by extracting the honey from the combs which contain the thickest honey and shifting the empty combs next to the brood.

By following this method the bees are not discouraged in the least, and the brood apartments are left in the proper condition for the bees to enter the surplus apartments when the white clover begins to yield its precious stores.

This thin honey should be put into open vessels (I prefer tin buckets as they are quite handy to move about) and if a thin cloth is drawn tightly over the openings it will keep out all insects and dust, and will not be in the way of rapid evaporation. Setting the vessels right in the sun will hasten the process of evaporation.

Of course these remarks apply only to localities where the locust abounds; and I wish to say here, as to whatever doubts may exist as to whether it will pay to plant honey-producing plants and trees, it will pay to plant the locust, both for the timber and for the honey it furnishes the bees. The locust with us yields honey as profusely as does the linden, and in my opinion of much better quality. The difficulty to overcome is the brief period of the locust run. It comes like an avalanche lasting not longer than seven or eight days.

To reap the benefits of its copious but brief visitation the extractor must be employed as the bees have no time to build combs or even to draw out foundation in which to store the nectar.

As soon as the locust harvest is thoroughly gleaned, if the white clover is nearly ready I commence to adjust the surplus furniture. Having made up my mind beforehand as to the shape in which I shall produce my honey, and having everything ready, the work goes steadily forward without any loss of time. To supply my home market with all the comb honey it will take, I adopt the plan which experience has taught me will give the greatest quantity of good comb honey, and in such shape as best suits that part of my trade. In arriving at a conclusion concerning this matter, I take nothing into consideration except the wants of my customers, and the pecuniary interest of my apiary. I used to produce nearly all my comb in "fancy" shape for my home trade, as well as for the trade in the towns and city, but I found that the laboring people who purchase honey at my apiary store had no appetite for "fancy;" they wanted honey, and to meet their wants I commenced to experiment with four and six pound packages and when I got them in proper shape I found that I could produce more honey —decidedly more— in the large packages than in one pound sections, and with a great deal less labor and expense.

When applied to box space for comb honey I have found it requires about thirty-four square inches to the pound of comb honey; this includes bee space for passways, etc. A six pound box, then, should be

4×4×12 inches in the clear. If made of $\frac{5}{16}$ stuff the box will be $4\frac{5}{8}\times12\frac{1}{2}$ inches outside measure. The one-half inch is added in which to cut the chime to receive the glass which goes in the ends of the box. I make the packages in this form so as to make them handy for tiering up. The package has a slot cut in the bottom and the top $\frac{5}{16}\times6$ inches. The whole is made by machinery and so perfect that they match each other perfectly in the tiering-up process. It will be seen that this is simply an improvement on the old box system, but no one need be alarmed at that; if you have a demand for such size packages just try the method I give below, and the cash returns will make the "boxes" respectable enough. Before the top of the box is nailed on, two sheets of thin foundation are fastened to it extending the full length of the box, and at a proper distance apart. Nice pieces of white comb will answer. The foundation insures two straight plump combs in each package.

Four boxes are adjusted over the brood nest of each hive, and as soon as they are two-thirds filled they are raised, and four empty ones are adjusted in their place, and they go on top of the empty set. The tiering-up process is continued through the season, removing the top set as fast as they are finished.

HOW TO REMOVE THE BOXES.

It will be observed that the boxes have a passway in the bottom and top; to close these, I spread a quilt over the top tier. When the boxes are ready to remove, I take off the quilt and blow smoke into the openings of the boxes till most of the bees have retreated to the lower tiers, and remove the boxes quickly before the bees have time to return. The boxes are then carried to the honey store-rooms and placed in front of the wire-cloth window so that the few bees left in the box may pass out at the bee "lead" at the top of the window and return home.

After the boxes are cleared of bees they are set on end in rows, so that in the process of evaporation the moisture can escape through the openings in the boxes. Two years ago I tried the experiment of pasting a strong piece of paper over the holes thus making the packages nearly air-tight, but I very soon found out that this would not do, as the moisture accumulated on the inside of the boxes and injured the quality of the honey. If it is desirable to close the holes, a piece of wire cloth or thin canvas is better, but at any rate, the moisture must not be allowed to accumulate on the honey.

I used to adjust these packages right over the frames without a honey board, but I have found that in a large apiary where even a little time is valuable, the skeleton honey board such as I use will pay, as it saves the time necessary to scrape off the bits of comb attached to the first, or lower tier of boxes when no honey board intervenes between the boxes and the frames.

Where there is no demand for such large packages it would be unwise to adopt them, notwithstanding more honey can be obtained by their use. At my apiary store I can get just as much per pound for comb in a six pound box as I can get for it in one half pound and one pound sections.

I am aware that there is a foolish prejudice against large packages—they don't look "progressive" you know. Progressive? Well, I used to keep bees in the interest of "science" and to gratify my thirst for knowledge, and I do not regret the time and money so pleasantly spent in that way. I learned all the "kinks" then. I now run my apiary for the

"profits," and big and little packages are valued in exact ratio to the amount of solid cash they bring.

In my next I will treat of small packages of comb, and further on of extracted honey.

Christiansburg, Ky.

A VISIT TO FOUR OF THE LARGEST ITALIAN QUEEN-BEE BREEDERS.

By Dr. A. Dubini.

(*Continued from p.* 11, *Vol. II.*)

Quitting Tenero I made my way to Gudo. There I was shown a goat path, steep and stony, flanked by a cascade; mounting the path, in half an hour I reached the dwelling of Mr. Pometta whom I found occupied in gathering his crop of grapes. Approaching thereto I could not help feeling sure of the nearness of the apiary, by seeing the flowers of the heather, which abounds in the mountain, all loaded with joyful bees humming loudly.

Mr. Pometta, whose acquaintance I had made at the exhibition at Milan, could not have been more polite, and showed me his one hundred colonies spread around on the grass in front of his dwelling; also his American instruments of which I had read descriptions in the journals, but had never yet seen.

He sends his superb queens all over the Cantons of Switzerland—to Germany—and mostly to England. He speaks English fluently, and writes it also. He is a very clever workman with his hands, and an extraordinarily active man gifted with the natural ease and grace of manner of a true mountaineer of free Switzerland. He seems to know just how to do everything with a truly surprising address and precision.

We opened several large hives. To unfasten the lugs of the frames he uses only a rustic pocket knife. He showed me his choicest queens with four large yellow rings which the English and Americans so greatly admire. Their daughters appeared to me to be of a beautiful shape, with three well marked yellow bands.

Here is, as he told me, his method of procedure. In the spring he takes the queen and all the frames of brood that are not sealed, from a colony of middling strength; these he distributes among the weak colonies, and replaces these frames by others filled with brood not sealed coming from a hive containing one of his choicest queens. In this manner the bees of the weak colony can only raise queen cells in direct descent from a choice queen.

To the full colonies he does not give frames with only guides to replace the frames taken away, but always those entirely filled with comb foundation. He is not in the habit of giving sealed cells to nuclei.

He examines each day the colony to which he has given brood from the choice queen, and as early as the eleventh or twelfth day he sees a queen is born, he catches her and lets her fall into a nucleus hive in which he has placed some hours previous three or four frames; one with some honey, another with sealed brood and one or two empty combs.

The adult bees go off back to their old hive and there only remain the young bees which always receive without any opposition a newly-born queen, even if she is a virgin. The entrances of these nuclei are capable of being made smaller or larger by the use of two pieces of triangular shaped wood

laid upon the alighting board. He gives queens and not royal cells as I have said, for the reason that he wishes to see if they are handsome, and if they well represent the mother. He only makes use of cells when he is obliged to absent himself from the apiary for a day or two, and when he cannot overlook the births at the moment they take place. In my presence he rolled some sheets of wax obtained by plunging a flat piece of board, first dipped in warm water, into a vessel warmed by a water bath which contained melted wax. The board has a handle at each end made of wire fixed into the body of the wood. When the wax is of the density of syrup, and *not* too hot, he plunges into it the dampened board, holding it suspended by one of the handles, and withdraws it rapidly, allowing it to drain; then if he needs a very thin sheet, not necessitating a second film of wax, he turns over the board holding it by the other handle and plunges the other side. This done, he has only to cut along the edge of the board to detach two sheets of wax that he proceeds to pass through the cylinders of the machine. These cylinders are kept constantly wet with a soapy solution held in a tin pan underneath the lower cylinder. The sheets of comb foundation are of large size, but can be cut to fit any frame. I took a kilo to fit my frames. The wax is fixed to the top bar, and should not touch the side or bottom bars. If it adheres to one side or the other, the sheet is liable to bend or warp and not get finished in an acceptable manner. Mr. Pometta furnishes the foundation made in yellow or white wax.

He showed me also his manner of shipping Italian queens by mail as samples of no value. He takes a block of wood measuring 6½ cm. on four sides by 3½ cm. thick. With the American boring machine he cuts in this a cylindrical cavity of 5 cm. diameter, and 3 cm. deep. Into this cavity penetrates from top to bottom, by a lateral hole of 12 mm. diameter, a tin tube closed at the top, and open at the bottom where it projects into the large cavity. Into the open extremity of the little tube is introduced a small cork which closes it, but which has on one side a little cut which gives passage for a cotton thread. The tube is filled with water and the thread dips down into it which comes out through the cork. The tube is now turned upside down and introduced into the small lateral opening in such a manner that the thread which is kept damp comes out at the bottom of the large cavity. In this latter, and on the opposite side to the cotton, is poured sugar which has been melted over the fire with very little water, and which solidifies into a solid mass. The damp thread must not touch the sugar or it would dissolve it little by little; this is done by the twelve to fifteen bees that are enclosed in the cavity with the queen.

The Americans, and even Mr. Jones who has imported the Cyprian bees to Canada, make use of water (which should be boiled) in little glass tubes closed with a cork and cotton thread. But the tin tubes cost less and are stronger, although by oxidation the water becomes of a reddish tint. They can be bought for three centimes each.

For a considerable journey, stopping off in London, Mr. Jones put 160 to 300 bees to each queen in an appropriate sized box having above and below an opening covered by wire-gauze.

To the water and the solidified sugar fastened in an angle of the box, he added a piece of honey comb fastened in the centre.

Bees have remained six weeks in these boxes with only one purifying flight when in London.

The opening of the large cavity (in the cage used by Pometta) is covered with a piece of wire gauze nailed on. The whole is wrapped in strong paper in which holes have been made so that fresh air may get in, then tied with string and consigned to the post.

For postage on such package only three cents are paid in Germany and also throughout Switzerland. When it is necessary to move a colony a short distance, Mr. Pometta employs with certainty of success the American method, which is to place a piece of wood in front of the door. As the bees go out they are forced to pass out by the sides of the hives, and this being new to them they take observations afresh and do not lose themselves on their return. In the afternoon, I took leave of Mr. Pometta pressing his hand warmly. Descending the rocky pathway I returned to Gordola whence the railway carried me in a few minutes to Locarno. Next morning taking the steamer I was slowly carried to Porto Viltra Vaglia.

The Tremontain brothers do not reside at Porto but at Nasca in a little village half an hour distant, and high up in the mountains.

Being known if not personally by reputation, I was very graciously received by three of the brothers; the fourth Captain Domenico Tremontain, who gives his whole time and attention to the bees (although the others are equally accomplished breeders) was not at home that day.

The Tremontain establishment used to be at Bologna, later on at Cremona, and at last they moved entirely to Nasca to a large property that they own. Rearing queen bees is carried on by them in much the same manner as by Mona and Pometta with this difference, that Tremontain procures in the autumn many strong colonies from the villagers, which they transfer in the early spring to frame hives, and from which they fill up their nuclei.

They send out their queens by post in the cases already described; but these gentlemen give no water as they are convinced by experience that the cooked sugar contains enough moisture when it is only a question of a few days.

Having taken leave of my pleasing hosts, I came down to Porto, whence by boat and train I was conveyed to Gallarate.

Some days later I set out to visit a fourth queen-breeder, and to make the acquaintance of that fine old gentleman Monsieur Celestino Spinedi, of Mendrisio. He has about sixty frame hives, but that does not suffice for the trade with queens that he keeps up in Switzerland and Germany. He obtains at a low price a great number of colonies condemned by the peasants to suffocation. This year by reason of the drought his honey crop has been very meagre, although sufficient for the maintenance of his colonies, which after all was enough for him as honey is not his object.

In a large garden that belongs to him near the great monastery of Mendrisio, and where he lives, he had sown a field of buckwheat, but having on account of the drought been obliged to sow too late, the same thing happened to him as to me, the same with the buckwheat as with the heather,—to wit: the flowers were there but the bees never took the trouble to visit them, because perhaps they secreted no nectar.

Round about his hives were planted groups of asters which were in full bloom, and much visited by the bees.

Mr. Spinedi is seventy-seven

years old, and of his life he has spent seventy years keeping bees and studying all the best literature on the subject. He embraced the movable frame hive system in a country where there never are abundant yields of honey. He has been able to profit by the demand for Italian queens, to make a good business, sending them out in boxes more or less large according to distance, etc. He does not have any hives with movable bottom boards. His bees are very fine, but he does not endeavor to obtain them by a constant selection such as Mr. Pometta gives.

He showed me that day, 13th October, one queen born eight days before, and fecundated by drones of her own hive, the only one having drones on that date. This queen had already laid several eggs in worker cells.

[*Translated by Arthur Todd, Phila., Pa.*]

BEE NOTES.

Have you ordered and secured your supplies for the coming season? Are all your new hives nailed and well painted with two good coats of lead paint and are you at work preparing the necessary outfit for the coming season's work? These are questions of vital interest, and much valuable time and many dollars may be wasted in putting off this matter until you see "how your bees come out." It is foolish to expect that the supply dealers can take your orders late and be prompt with the work. "A word to the wise is sufficient." When you purchase your supplies, it will pay you to visit the supply dealer and make your arrangements with him so that there will be no dissatisfaction. Remember also that it is better to deal with a first class workman who does honest work and give him a fair price, than to send to those who agree to furnish goods at astonishingly low prices. Almost *invariably* cheap prices mean "a cheap quality of goods." When we degrade labor so that manufacturers in competing are obliged to hire cheap and unskilled labor and use a cheap grade of material, it is folly to expect first-class goods.

Very many beekeepers whose bees are packed away in the cellars are too anxious about them and deem it necessary to stir them up every day or two and clear out the dead bees from the entrances, etc. This too kindly treatment means destruction to the bees. If they are packed well (in the cellar) and have plenty of food, let them *alone* just as long as they will remain quiet. Do not be in a hurry to remove them from the cellar unless they have become uneasy and if compelled to place them on the summer stands before the danger from chilly nights is past, pack them well in sawdust or chaff and place thick cushions over the brood nest. Many of our readers are in localities more advanced than ours and to these we would say, just as soon as it becomes warm enough so that you can manipulate your colonies, remove every comb that the bees cannot cover within the cluster even when the nights are cold. It is far better to place a stimulative feeder over the cluster and supply the bees with thin food (sugar syrup) than to leave, in the brood nest, several combs that cannot be covered or utilized for rearing brood.

It is at this time (when they begin to build up) that we lay the foundation of strong stocks. Do not be afraid of reducing the number of combs or size of the brood nests; the more that the bees are crowded together the more rapidly will the colony build up. Empty combs may be placed one or two at a time

in the centre of the brood nest as they are needed, but be careful not to spread the brood so that it will be neglected and chilled. We know by experience this method of building up is sure and a great "medicine" for spring dwindling. Just as soon as the bees begin to fly out in search of pollen and water, supply them with thin sugar syrup, fed to them in such way as to keep them at home. Bees must have water and if not supplied to them in early spring, they will perish by thousands in their endeavors to obtain it.

In conclusion we would say, prepare well beforehand for the coming season's work; keep the bees warm and snug; be prepared to devote your whole attention, if necessary, to the bees when they begin to fly.

NOTES AND QUERIES.

We have just received from Messrs. Thurber, Whyland & Co., a jar of their "best comb honey," or at least the lable on the outside reads "Thurber's best comb honey." The jar and its contents certainly look enticing, and were it not an adulteration we should heartily recommend it. The contents consist of several pieces of comb honey surrounded with a liquid, composed of glucose and honey. On the top of the jar under a glass cap and printed in small type there is a statement that the liquid surrounding the comb is saturated with corn syrup (glucose). We would suggest that the label on the front of the jar (which should represent the contents of the same) read as follows: "Thurber's prepared Glucose and Honey," but then the honey would not sell; then sell only *pure* honey. We were both surprised and pained when reading the February number of "Gleanings" to find that its editor had endorsed the position of Messrs. Thurber, Whyland & Co.

We quote as follows: "Now, if the corn syrup is nice, without any sulphuric acid about it (and I guess the Thurbers are equal to the task of furnishing pure and wholesome foods of almost any description) I do not see what is the harm if people want to buy it so. Comb honey in the glass jars *must* have something surrounding it that won't candy if it is to be a success." It would not be surprising to us to read in "Gleanings" at some early date the following notice, viz.: "we have just received a first-class lot of *nice corn syrup* free from *sulphuric acid* for the use of beekeepers in preventing the granulation of honey." But we hope that no beekeeper will ever commit so great an act of folly as to adulterate his honey, as it would result in ruin to our honey market. The bitter experience that the beekeepers have had with *grape sugar* should caution them against experimenting with *glucose.*

Messrs. George W. Stanley & Bro., of Wyoming, inform us that they have just completed a perfect four-comb honey extractor which is so arranged that the honey can be extracted from both sides of the combs by simply reversing the motion. We have needed just such a one for a long time, and Messrs. Stanley & Bro. have conferred a boon on apiculture if their extractor is all that is claimed for it. We hope soon to publish an illustrated description of it.

Mr. J. D. Goodrich, of East Hardwick, Vt., has sent to us, for our museum, samples of his hive, comb honey-rack, etc. If all of his work is done as accurately and is of as good material as the samples sent, it must give entire satisfaction.

We have just received from Mr.

Chas. F. Muth, of Cincinnati, Ohio, some of his one-half pound honey jars; they are very fine and should come into general use. We are pleased to see, cast in the glass, the words *pure honey*.

We have just received from Mr. Charles Lake, of Baltimore, Md., samples of his improved sections which as one-piece sections are very fine. The only objection (and one which we think may be due to the nature of the wood) is that some of them appeared somewhat brittle in bending. It is a wonder that such good sections can be made so cheaply.

We have just received from Mr. Charles Dadant & Son, of Hamilton, Ill., some very fine samples of comb foundation, the thin for the surplus boxes being very delicate; the base of the worker foundation was thin, while the side walls contained considerable wax and were quite high.

We shall be able to supply extra copies of this number for twenty-five cents each, which will, we think, be a fair price for it.

Mr. W. H. Norton, of North Madison, Me., has kindly sent us one of his new division-board feeders, which is at once so simple and complete as to be of value both to the novice and expert. One who does not care to disturb the bees while feeding them will find this feeder a good one. It answers equally well both for slow and rapid feeding. It certainly is a most ingenious and valuable addition to our implements.

CONVENTION NOTE.

The annual meeting of the New Jersey and Eastern Beekeepers' Association for the election of officers and other business, will be held in the city of New York, at Room 24 Cooper Union, beginning Wednesday March 12 at 10 o'clock A. M., and continuing two days.

J. Hasbrouck, *Sec'y.*

QUESTIONS AND ANSWERS.

[The following questions will be answered in next number.]

QUESTIONS BY G. W. DEMAREE.

1. Do bees under the swarming impulse prepare themselves in advance for the work of comb building? If so, when compared with a colony that is permitted to utilize this accumulated force by building their combs from mere guides or starters, what is the probable loss on this account when hived on full sheets of foundation?

2. If two swarms of like size and condition are hived on the same day, the one on full sheets of foundation, and the other on empty frames with mere strips of foundation for guides, what will be their relative condition at the termination of ten days, both colonies receiving the same treatment as to the surplus arrangements?

3. When sections filled with sheets of very thin foundation are given to bees do they always utilize the whole surface of the sheet as a septum to the combs, or do they sometimes trim down the sheet and convert it into a mere "starter," from which the comb is built in the natural way?

4. In uniting bees, have you derived any benefit from the use of aromatic drugs, such as peppermint, etc.

5. After removing the queens and all the brood from strong colonies I have seen a few cases in which the bees fought and murdered each other to an alarming extent. Have you ever had such an experience, and to what cause do you attribute such behavior?

QUESTIONS BY DR. C. C. MILLER.

6. How soon after comb honey is taken from the hives should it be brimstoned to kill the larvæ of the bee moth?

7. How many subsequent fumigations are necessary and at what intervals?

QUESTION BY MR. TEFFT.

8. Will virgin queens that have been wintered through be able to mate and produce worker eggs, and will they be good for anything?

QUESTION BY R. M. STEVENSON.

9. What is the best case or rack for surplus boxes, to put over the brood nest storing comb honey?

QUESTION BY CHAS. GROOM.

10. Will a colony of bees work just as well, when deprived of their queen to prevent swarming?

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CARELESS BEEKEEPING.

BY CHAS. F. MUTH.

As most beekeepers are apt to relate their success in business, or what they could do with their bees, I have selected the above heading in order to show a part of the other side of beekeeping. Everybody is acquainted with a careless man or a careless boy who knows that a certain part of his business requires his attention at a certain time, but who will invariably postpone to the next day or the next week, and finally complain of his bad luck and that he could not make anything. I know of a farmer who in July, 1882, turned his hogs into a wood-pasture which he knew was without water. He had lost, six weeks afterwards, fifty fine hogs from "cholera," and he added: "I always had bad luck with hogs and I shall keep no more." Upon my enquiring where he kept them and whether they had a sufficient supply of water, he admitted that, perhaps, the insufficiency of water was partly the cause of the cholera.

It is a pity that there are just such careless people among beekeepers; but the very best of us may be guilty of a very careless act as I shall try to show by a case from my own apiary. It brought to my mind a vivid illustration of a careless beekeeper and last but not least, the superiority of Italians over the black race of bees in keeping their hives clean of the bee-moth.

After the honey season had closed, I had three colonies of black bees. The second story of one of them, I filled with combs which had been hanging in my bee-room and become infested with moth. I picked out all I could and left to the colony of black bees the finishing part. The same thing had been done by me many times previously with Italians, which made a clean sweep of the moth in every instance. I had not the slightest doubt that this strong colony of black bees could accomplish the same task equally as well. Sickness and death of a member of my family prevented me from looking again at my bees until they

were prepared for winter. All were in good condition and had a great abundance of winter stores. When I came to the black colony mentioned above, I found, to my great surprise, almost all the combs of the second story consumed by moth, while the condition of the brood chambers was such that I had to supply the colony with a new hive and new combs, leaving them only the best after the worms and webs were picked off. The colony was still strong in numbers. We had a few pleasant days at the beginning of this month (February) during which time I overhauled my bees. Our winter had been a severe one with the thermometer ranging between 18 and 22° below zero for several days, and when I here state that the condition of my bees challenges that of any in-door winterer, it is no exaggeration ; only two colonies queenless and the black colony mentioned above conquered by the moth. Most of the large worms were frozen to death with the bees, and I was surprised at the headway the moth had made during the winter months.

It may be stated here that I wintered thirty-four colonies on the roof of my house, and twenty-two in the front yard of the farmhouse. These latter can hardly be surpassed in regard to strength of colonies, although they are all in single-walled hives with no other protection than a straw mat above them, and their entrance at the alighting board entirely open. My house apiary is composed of chaff double-walled and single-walled hives. It is this spring, as it has been for twelve years past or more, hard for me to decide in which kind of hive my bees wintered best. Give me, therefore, the single-walled hive. All of my bees wintered on nine or ten combs without division-boards. But I have put now the colonies of my home apiary on five, six, or eight combs by the means of division-boards (excepting five or six stands at which I could not yet get) while division-boards at the farm apiary were entirely useless.

Cincinnati, Feb. 15, 1884.

CONCERNING AN ORGAN OF THE BEE NOT YET DESCRIBED.

[*From the "Bulletin d' Apiculture." by A. Zoubareff. Translated by Mr. Frank Benton.*]

INTRODUCTORY.

Mr. C. Thompson, of Brighton, Mich., writes in "Gleanings" for June, 1880, that "bees when fed very thin food fill themselves, take wing, expel the water, and store the remainder in the combs," and that "this is the way the bees evaporate their honey, in part at least." Then he wonders "if the honey-sac is not a sort of laboratory or a filter, which separates the water from the sweet." Well, I do not suppose that he or any of the rest of you thought then that some of the bee-brothers away over in Russia would be telling how this possibly does take place. Perhaps they have not hit upon just the right theories, nor attributed the correct

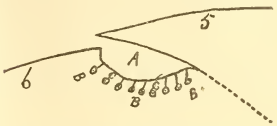
functions to the newly-described organ — all these things will have to be proved or disproved by further observations. But, at any rate, the following article, translated from the *Bulletin d'Apiculture* of Switzerland, is interesting and instructive.

F. B.

Munich, Germany.

Mr. Nassonoff, a naturalist connected with the Imperial Acclimatization Society of Moscow, while dissecting, in the apiary of this society, the abdomen of a bee in order to study the structure of the glands of its outer covering, observed near the last ring, which belongs to the cone-shaped portion, a small canal (A) which passes along the edge of the dorsal half of the ring, and is covered above by the edge of the preceding half-ring. Mr. Nassonoff calls to mind the fact that bees when irritated often raise their abdomens turning the tips (the fifth ring) downward in such a manner that the last two rings spread apart and show a white stripe which separates them.[1] It is exactly upon the posterior part of this stripe that the small canal in question is found, opening toward the space between the rings.

At the bottom of this canal a large number of small glands open, each one of which has an oval cell (B) with a well-defined globule. From each cell a fine duct starts out and extends to the bottom of the canal in question. The walls of these ducts are of the same texture as the hard portions of the cutaneous covering.



Section of the cutaneous covering of the last ring (6) and next to the last ring (5) of the worker-bee. A, the small canal; B, the glandules; C, the ducts of the glandules.

This description completed, Mr. Nassonoff goes on to conjecture as to the use of the glandules referred to and wonders if they secrete the wax or the perspiration; but rejecting, himself, the first hypothesis on account of the evidence assigning the formation of wax to numerous segments on the under side of the abdomen, he stops with the second supposition, basing it upon the absence of other glandules (?) on the body of the bee.

Without rejecting absolutely Mr. Nassonoff's supposition, I compare the existence of the above mentioned glandules with the observation reported in one of the numbers of the *Bulletin* regarding the little drops that bees let fall before entering their hives. It is well known that bees partake freely of liquid substances although they may contain a large proportion of water, like the nectar of flowers moistened by rain or dew; nevertheless, the honey deposited in the cells does not contain the same proportion of water as the substances taken by the bees. That proves that the little drops mentioned represent the liquid excess

[1] This same stripe can be seen when bees beat their wings in ventilating the hive or as a sign of contentment.— F. B.

thrown out by the bee, and it is to the organ noticed by Mr. Nassonoff that it seems natural, according to my idea, to attribute the expulsion of this excess. Might not this be a specific peculiarity in the organism of the bee adapted to certain functions?

On the other hand, it is known that the bees of a colony which need water bring it by taking it into their abdomens — a proof then that the functions of the glandules are *discretionary*, whereas the act of perspiring of organic bodies is not so, and the exhalations (of the bee itself) are cast off ordinarily in the form of vapor which rises, and not drops which fall.

A. Z.

Wassilkowo, Russia, July, 1883.

THE TIERING-UP SYSTEM.

By G. W. Demaree.

Years ago, I produced all my surplus honey in single cases. This system of management made it necessary to wait on the bees until each case was finished ready to be removed, before empty cases could be adjusted in their places. It was evident to me that my bees progressed slowly, sometimes letting the best of the harvest slip away unimproved. I began to observe closely to ascertain if possible the cause, and my first discovery was that my bees would fill the boxes about two-thirds or three-fourths full in a given time, and then waste as much more time in finishing them up. This suggested the tiering-up plan. Of course others had practised it, still it was new to me, and upon making the application I found its advantages to be far greater than my most fond anticipations could have led me to imagine.

In those days I used six pound boxes with slots in tops and bottoms, four of which would just cover the top of the brood department of the standard "L" hive, and when these were about two-thirds full of comb and honey, I would raise them, and adjust an empty set under them, and proceed in this way till the upper sets were finished, when they were removed and so on through the season. In this way, I could obtain an immense yield of surplus. After I learned to use the small sections, I tried to work them in single cases, removing the sections as fast as they were finished, and supplying their places with empty ones. I found this a fair substitute for the tiering-up system, but I also found it to be too much work in a large apiary; hence I took up again the tiering-up plan, raising the cases full of sections, when partially filled, and adjusting empty ones under them.

When handling a few colonies of bees it matters but little how tedious we go at our work. But in a large apiary the case is altogether different. The methods employed must be in proportion to the magnitude of the business. I have given the wide section frames a fair trial, and they work pretty well,

though always unwieldy to handle right in the middle of the honey harvest. But certainly any plan which requires the giving to bees so much room all at once, especially in the early part of the season is the worst kind of misconception.

In my opinion any system of producing either comb or extracted honey, which does not admit perfect control over the amount of room to be given the bees at the best judgment of the apiarist, will never be satisfactory in a large apiary.

I found out years ago that I could produce a larger quantity, of better quality of extracted honey by using frames just half the depth, and of the same length of my brood frames, working them in shallow cases similar to section cases, and tiering them up as fast as the bees require the room.

These shallow frames need no wire to support the foundation. They never break down when extracting, and can be uncapped by one long stroke of the knife. With a full outfit of this kind, any brisk apiarist can manage an apiary of two hundred colonies run for extracted honey without any help except when the extracting is done, which may be deferred till towards the close of the season, and then all under one job. If there is any plan that will so completely suppress all desire to swarm as this method of systematically giving the bees all the room they can possibly utilize, just as fast as they need it, and no faster, I have never heard or read of it. I make the cases the size of the brood department, and just deep enough to take the shallow frames, allowing when cutting the rabbets, the usual air space of $\frac{5}{16}$ of an inch. They are made to sit with a square joint on the brood department, and on each other when tiering up. I use a common bee quilt to cover the top case, and over this the cover of the hive.

Sometimes the queen will visit the cases and deposit eggs, and a lot of brood will be reared. But this trouble is less liable to occur in the shallow cases, than when full sized combs are used, for the reason that the "tiering" of the cases keeps up to many changes for her ladyship's nice ideas of propriety.

Christiansburg, Ky.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p. 13, Vol. II.*)

CHAPTER I.

In every colony you will find three kinds of bees; the queen, called by the ancients *Weisel;* the common or worker-bees, which are also called the neuters, but which are this only by accidental condition; and the drones (improperly called the brood-bees[1]), but the latter are not to be found therein at all times.

[1] This is rendered *Brutbienen* in the original.—Ed.]

The queen, rightfully so called by reason of her majestic form, her authority and superior excellences, is the most important, the chief and leader in a bee republic. Without her, the whole colony scatters and soon dwindles away. She rules and is the soul of all the work done in the hive. She is the mother-bee and is vastly more productive than one would believe, as like the insects in general which are short-lived, they increase rapidly. In three months she produces more than 30,000 young bees. A single young swarm, if it is a fairly strong one, consists of 15,000 to 25,000 bees, and still the hive at the close of the summer is as full of bees as in the beginning of spring, notwithstanding the tenth part at least perish through the summer either at the gathering in the fields, are caught by birds, or perish from wind or weather. Yes, a single strong colony, which has not been permitted to swarm, but increased in strength instead, will contain 40,000 to 50,000 bees.

Besides her prolificness, the queen also commands admiration on account of her beauty and other qualities, and indeed is a beautiful creature among all insects. Her smell is balm-like. She is much larger and prettier than the worker-bees. Her head is rounder and her muzzle shorter than that of the workers, and her mandibles are indented while those of the common bees lie flat; so that you can see well the queen is not born to work, as she is unfitted, by the construction of her mandibles, for drawing out or working the wax. They are, on the contrary, prepared and arranged to hurt the superfluous queens and to kill them after the constitution of her wise economy. Her eyes consist as those of the other bees, of many thousand little mirrors which are cut square, of a purple color and covered with hair. We see in this also the admirable wisdom of God, who has formed the eyes of these insects in such a way that the rays of light can fall into them from all sides. The bees can therefore see distinctly in the darkness of the hive and build as well at night as in the daytime, and also when the workers are surrounded by a whole cluster.

The wings of the queen are exactly as long as those of the worker bees, although they seem to be short in proportion to the much longer body, a proof that they by nature are adapted neither for work, nor much flying out, that being the common business of the workers. Their hind legs do not possess the pollen-baskets which characterize the working bees, and in which they hang their pollen-balls, and are not so thickly clothed with hairs. As to her color, the upper parts are a little more light brown than those of the other bees. Her abdomen is almost twice as long as the common bees, also more pointed at the end than the others, and strikingly resembles polished black marble. While the two large hind feet of the common bees are black, her feet are pretty golden yellow; and the whole under part

AGRICULTURE

of the abdomen is of a brilliant color, showing under the microscope a blending of hues which is truly beautiful.[2] Her carriage also is majestic and her movements easy and graceful.

A very peculiar and remarkable thing, as well with the bees as with other insects, is that the queen bee alone has an audible voice, which astonishes an observer. You hear it particularly at swarming, as the queen gives her colony the signal for the start and begins the day before her; *tüt, tüt, tüt*, so clear and loud, as though blown through a horn, as you can hear it very distinctly within six to eight steps. I have often listened and looked at her with astonishment, to see how she strains her voice and body in doing so. When she trumpets like that, she stands quiet and clings to the cells with her feet, so that her abdomen touches them firmly and then she *tütes*. The tone does not proceed from her mouth, but out of air-holes of which she has four principal ones on the side of the thorax whose outer openings are oval, and through which she presses the air and forces it out, causing this inarticulate and broken tone. She goes from one corner of the hive to the other and repeats it.[3]

When there are several young queens, you can distinguish the older from the younger very distinctly by the voice, as the latter render a more delicate tone, and if there are four there at the same time, you can plainly distinguish one from the other. You may also hear the voice of the queen in her song, as you may call it, at the time when there have been strong honey-dews, and her colony fill the hive abundantly with honey. Then

[2] There are also liver-colored queens and those entirely black, but they are very rare. The common ones with under portion of the abdomen and feet yellow are the most beautiful and are called the best. Moreover you must examine a living queen if you would judge about her real size, as when she is dead she does not look like herself. The rings or segments of the abdomen draw together and telescope, as its long form is principally caused by the extension of the rings or segments whereby room is given for the ovaries, but through which the nerves course tending to stretch the abdomen constantly apart as long as she lives. Especially is she the largest and most beautiful at the time of laying. A common queen of medium size, which is ten to eleven lines long when alive, does not measure when dead more than seven lines, and is also only one line longer than a dead working bee, which is five and one-half to six lines long when dead, and only seven lines when she is alive and young, because old worker bees are small and shrunken.

[3] I shall not, however, say anything wonderful about the bee republic, if there is no cause, but I cannot be persuaded that this tone which the queen utters should be caused solely by biting, and pursuing of the rivals for the regiment, as a great many bee teachers insist upon. The tone itself, as the preparation for it, has always contradicted that to me. I have often seen the queen doing it without being pursued by other queens. Yes, during a quarrel and biting with another one, she cannot give this regular tone, because she has to make the preparation for it as before mentioned. Therefore, I have never heard it when I saw that the persecutor was behind her. It may be right to say that the pursuit of the others, or the old queen urges her on more, to blow for the speedy departure; she also does it when no other young queens are there. Yes, the plainest proof that this call of the queen is a signal and a watchword to her colony, for departure, or to follow her, is without doubt this: if you drive a stock of bees out of a full hive into an empty one, especially through the drum, you hear the queen *tüten* very often, the same as before the swarming and this happens when already the most of the colony have gone into the empty hive. What rival pursues her there? Surely none. But she calls the rest of her followers to gather around her, which they do immediately.

I have heard it often and especially in the evening with wonder. But whether the queen began this song from a feeling of pleasure (which we cannot doubt animals to possess as well as grief) by reason of the abundant harvest, or if she by that means roused her dependents to renewed diligence, I cannot say. It may be both.

Rodheim, Germany, July 25, 1783.

(*To be continued.*)

BEEKEEPING IN THE SOUTH.

By J. P. H. Brown.

On this subject there has been considerable said in the Journals, mostly by persons whose enthusiasm was slightly in advance of their practical experience and correct observation.

The pursuit of apiculture is attended with advantages and disadvantages in any country. The great advantage the south possesses over the north is, that the winters are so mild bees need no special repositories, or extra preparation, to protect them from the cold. If a colony in the fall has plenty of bees and from twenty to twenty-five pounds of honey it will come out all right in the spring in any sort of hive. A few winters ago I went to an old box-hive apiary to purchase some bees, and I found a number of gums were knocked down horizontally on the ground with the cap-board torn off, and the cold winds blowing through the hive from end to end, but the bees were all right in their shabby quarters. This demonstrates how easily bees are wintered in our climate. But there are other essentials, besides successful wintering, necessary to make beekeeping profitable. There must be an abundance of honey-producing plants. The mellifluous flowers must secrete the nectar in profusion, and the atmospheric conditions must be favorable for the bees to gather it.

In the south, the natural flora of the country supplies nearly all the pasturage, and this is chiefly found along our water-courses, swamps, and lowlands. The nearer the apiary is to these localities the better. In some few places white clover will do well and yield honey profusely, but in sandy soils the hot sun soon kills it out.

In the latitude of Augusta, Ga., which is about 33½° north, breeding generally commences about the twentieth of January; but no surplus honey of any consequence is taken before the first of April. In order to support the great amount of developing brood till April, it is necessary for the colony to have at least twenty pounds of surplus laid up in the fall.

This is quite as much honey as is required to winter your colonies in the north. All our surplus is taken between the first of April and the fifteenth of June. Through July and August bees gather a bare subsistence; in very dry seasons th ey do not hold their own. All experiments thus far, in the way of cultivated

forage for these months, have been failures. This period of our summer is mostly dry, and what little saccharine matter is secreted by the nectaries of the flowers is evaporated by the dry and warm atmosphere before the bees can gather it.

In September the fall flowers such as the solidago, asters, etc., commence to bloom, and keep on until the frost comes; and in favorable seasons I have known considerable surplus to be taken.

In the south, the active work in the apiary requires fully eight months with not as much average surplus as is taken in a northern apiary with three months' labor. From observations made both north and south, I am satisfied that a cool climate is preferable for the production of honey. In the north it often comes like a flood in a few weeks or days, while in the south we have such an abundance and variety of honey-producing plants, that the flow is less profuse but more extended. Honey in the south is still considered more of a luxury than a staple article, but there are very few places where honey cannot be sold if put up in nice neat packages. There is not a town of any size in which a honey market cannot be established if perseverance and intelligence are properly used.

Augusta, Ga.

ITALIANS VERSUS *ALL OTHER BEES.*

BY J. E. POND, JR.

IT has of late become quite the fashion to cry down our beautiful, gentle Italians, and assume that other races are far superior to them. This fashion was started by one of the "big guns," and behold all the small fry follow suit even those whose experience is covered by a single year. But why is all this? Only a few years ago after twenty years' experience with them, the Italians were acknowledged to be A No. I. Has the race really deteriorated or is the fashion simply changing?

Let us for a moment look the field over and see what those points are which the Italians lack, and which the other races possess to so high a degree. We can throw the blacks entirely out, for it is admitted that they are inferior, although there are a few queen breeders who would have us believe that a cross of the Italians with the black produces something superior, but I am inclined to go a little slow on hybrids, as the evidence given during the last twenty years until very lately has been strongly against any hybridizing of our stock; and I fear that those who just now are so anxious to make us believe they are so very superior are grinding an axe on our grindstone, and trying to get us to turn. As for myself, I am willing to loan the stone, but some one else must man the crank. I

have not really got the time to spare to do it.

Next come the Cyprians. Well, what is the testimony in regard to these? It is so varied in character, and so conflicting, that I for one cannot accept it as proving anything as yet very favorable to them. They are cross, prone to swarm, run to fertile workers, but very prolific; so much so that some of our ablest beekeepers say they want two colonies of Italians to supply the brood with honey. These bees are not the kind for which I wish to change my Italians, not yet. Well, how is it with the Holylands? The only good point I have heard in regard to these, on which the testimony fully concurs, is that they are splendid queen-rearers. If this is so, then they are just the bees for queen-breeders to use, but for us who are after honey, we must have something other than queens. And so we go, Syrians, Hungarians, Carniolans, Polands, etc. None of them, so far as they are yet known, anywhere equal the Italians in general points of excellence. Perhaps each of them may have some one point in which it excels, but as a whole the Italians are as yet far, far ahead. Why then should we change them? If any one does desire so to do, simply to be in the fashion, all right. I, today, am speaking for that class who want bees for business. We are told that the Italians are hybrids. Perhaps they are, but they are now a distinct strain, and have been bred "true to color" for so many centuries (I claim that the yellow bees of which Virgil speaks, are Italians), that their characteristics are firmly fixed and they duplicate them every time in their offspring. To those beekeepers who have had a large experience, I have nothing to say in this article. They are as capable of judging as I am; but to that class who are just beginning to learn this interesting profession of ours, I must say go slow. The Italians have been well proved, and we know what they are; these new races are comparative strangers to us, and have their reputation yet to make. If they eventually lead the world, well and good; if not, all right. For my part, I advise beginners to let them alone, and allow those who have had large experience to test them. Thus will the tests be well made, and if, in the race for the survival of the fittest, the Italian has to take a back seat, no harm is done by waiting; but if they do not, then the loss will fall where it should, on those who can afford to sustain it.

Foxboro, Feb. 2, 1884.

BEE POWER AND MAN POWER.

By J. W. Porter.

Professor Hasbrouck's article in your January number is very interesting and opens up a subject of great importance.

That a great amount of time

and money can be saved by a little "wholesome neglect" is as true in the management of bees as the wise mother found it to be in the management of her children. In canvassing the question: what the venerable Jasper Hazen called "the field" has a most important bearing upon the subject as to whether the most profit can be realized by putting the brain and labor with fifty colonies or any given larger number. Some of the very best locations in the country for comb honey are found where the honey must be stored within a very few weeks or not at all. Success in such locations depends upon the most careful manipulation and timely attention. At this time it will not do to neglect, and I have found that a hive on the scales, a good one selected for the purpose, to be the best signal. Rapid work is demanded when it shows a gain of seventeen pounds in a day as I have known it to do here; when it goes down to four or five pounds, less interference is far better, and when it begins to go below that, management looking to completion of sections already on and closing up instead of adding to the hives new ones is indicated as the true policy.

Rapid increase of the number of colonies is incompatible with large productions of honey as a rule. That swarming can be in a great measure controlled, I have to my own satisfaction demonstrated. Nothing can be more discouraging to one who depends on honey rather than the sale of bees for profit, than to have bees get into what is called a swarming fever.

Now the question so often raised by Mr. Hazen as to the capacity of "the field" has never been definitely settled. Friend Doolittle long ago urged the importance of having the colonies brought up to the very highest point of effectiveness at the moment the honey flow began. This practice Mr. Hazen knew nothing of and it has an important bearing upon the subject.

Very many like the writer are situated so that increase of numbers is not desirable. Occupying the field we have, we do not want to sell bees in our own neighborhood to lessen our own supplies.

It has never been definitely settled how many bees can be kept to the square mile even in the best honey regions, with a liberal storage of surplus.

One thousand colonies might live and thrive, but with no surplus where one hundred would give a very large surplus if managed properly. Now, if honey production be the object, most assuredly Professor Hasbrouck errs in the belief that the bees can manage swarming more cheaply than we can do it for them. Why, this last year I took two hundred pounds of comb honey from a colony which swarmed after nicely beginning work in sections. Now, judging by past experience, I should not have fifty pounds of surplus had I not made one of the two very powerful. I did it by taking five or six sheets of brood to the new swarms from the old hives and

much of it ready to hatch, and restricting the new swarm to eight frames by thick division-boards, placing the honey rack on it and forcing the bees right into the rack; to get room, in two days I had to put under a second rack and they boomed right along, and the old hive with cells cut out and a queen put in became a good stock colony. We must have all the bees we can keep in the hive to get the largest results. It is practicable to tier up three or more cases to make room for the army of workers we want. It has been my practice for two years, and I like it, so to strengthen those colonies I work for comb honey, and then restricting the queen to not more than eight frames and thus forcing the bees upward. I prefer the ten-frame hive because I want the room below to work up *power* for the needed time as well as to give me its brood chamber on top, and then restrict by putting in dummies at the sides, which are very useful also in wintering on summer stands.

As for side storing I never could get bees to do it here. I have had frames with natural comb in sections and foundation also remain empty all the season in hives that have filled case after case above. I have no doubt that bees differ in different localities in this respect. We do not want to work against "cheap Italian labor" as Professor Hasbrouck has it, but we do want to avail ourselves of every advantage that cheap labor gives us.

Charlottesville, Va., Jan. 19, 1884.

EDITORIAL.

There seems of late to be a great diversity of opinion regarding the subject of teaching beekeeping to the masses and encouraging beginners to engage in it, and we think that one great cause of this difference is that we do not rightly understand and provide for the relations existing between the specialist, or the one who has his whole capital invested in his apiary depending upon it for support, and the one who only keeps a few colonies, by which to provide his table with sweets and perhaps help to reduce some of his minor expenses.

Both have rights which must be respected and provided for, and so long as the education of the masses of beekeepers is left to those who have the best hive and goods for sale, just so long there will be trouble.

Do not misunderstand us. We would not have you think for one moment that in the next sentence will come an appeal for you to support the Apiculturist. Not at all. We would only act as a means to induce the beekeepers of America to establish a thorough system of associations, governed by a national association, which shall represent the interests and rights of the masses who are engaged in this industry.

It is only through these that we may hope for the best results, and they should be supreme authority upon all matters pertaining to apiculture, and so thoroughly organized and permanently established, as to be proof against the undignified

and unmanly assaults so often thrust upon them. When we have a national convention composed of a proper number of delegates from each state association who act for the state associations at their expense, then, and only then, can we feel that we are fully prepared to meet many of the questions which now vex and trouble us.

Beekeepers write to us asking what particular hive, frame, etc., we prefer. Well, we may give our opinion. The same inquiry may be made of the editors of other journals, each of whom will, in all probability, give a different answer. Now, it is impossible that each one of those fixtures is the *best*, and pray tell us why it is that there must be such a diversity of opinion. Is it not that there is a superabundance of self-interest? Nor do these matters grow less complicated. On the contrary, we are becoming more and more confused in this regard; until, among the supply dealers, there are hardly two who advocate the same style of hive, or section.

That noble and honored pioneer of apiculture in America, father Quinby, looking forward into the coming years, portrayed this same condition of affairs, and hence while one of the first to test and make use of anything of value, yet withal was very cautious in adopting every new method, or change in hives or fixtures, and always bitterly opposed to non-essential changes, when made for the sole purpose of creating a sale for the goods.

While we consider it far more just and beneficial to the majority to protect and encourage inventive genius by patents than to place every new invention in the hands of a monopoly which depreciates and degrades labor, and makes it impossible for small manufacturers and dealers to live, yet we are aware that many of the so called improvements are non-essential and only made to advertise the goods of their originators, and build up a business for them.

The question is, How many beekeepers are willing to join hands in bringing about this reform? It is foolish for beekeepers from every state in the Union to incur the expense of attending a national convention which shall result like the last. What good can come to apiculture from such conventions? None: rather harm. This is plain talk, but we have truth, reason and justice on our side. When each one who takes prominent part in our conventions is willing to work for the interest and in the benefit of the majority and stand by their decisions, then we shall find it easy to adopt such standards as are needed: eradicate foul brood, regulate the honey market, and provide for the proper education of the masses.

As we have before stated, these matters are becoming more complicated each year, and unless we give them immediate attention, we shall find them a burden on our hands, or be compelled to leave them in the hands of a monopoly. How much of injustice and wrong

has been done those who have worked for the interests of apiculture, because we lacked the proper means to decide upon this question!

We might enter upon a careful explanation of the means whereby we can regulate these matters, but deem it best to throw out these suggestive hints hoping thereby to call out the opinions of others regarding them. The Northeastern Association, as a state association, is a noble example of the lesson which we would inculcate, and when each state in the Union has such an association sending paid delegates each year to represent its interests at a national convention, matters will assume a far different aspect.

Those who would appeal from the decisions of such associations are generally those who have interests which conflict with the best good of the majority, and such parties will endeavor to thwart every attempt to establish a system of mutual benefit for the good of the largest number.

Only a short time since, as we have mentioned elsewhere, the Maine beekeepers' association forever settled a question which has needed attention for years.

The question now is, Will the beekeepers rally to the work of bringing about this needed reform? We trust that they will, and that in regard to this matter of education, our fondest hopes will be realized.

BEE NOTES.

The long severe winter through which we have passed is almost gone and yet a long time must ensue ere the bees begin to store surplus honey, especially in the northern portion of our country. Now the question is, What shall we do with our bees? And how may we bring them into the best condition to gather the honey flow when it comes?

We referred to this matter in our last number, but it is of sufficient importance to warrant still a few more words of caution and advice. Many persons think that the bees are wintered when they are first placed upon the summer stands but this is not the case.

As a rule, bees seldom die until the last portion of winter and during early spring, and it is now that the most careful attention is needed as it is the most trying time in the season.

Again, in order to have first-class strong colonies of bees which shall gather the flow of honey when it comes we must begin now to lay the foundation of such stocks.

Many of the bees in the colonies have died during winter and when the weather is warm enough each colony should be examined, and every comb that the bees cannot cover should be removed. This is one preventive of spring dwindling; for it is foolish to leave a small cluster of bees in the centre of a large brood nest surrounded with damp and mouldy combs. Just try this contracting of the brood chamber, then pack your bees warm and snug with a cushion over the top of the brood nest, cover the frames with something that will retain the moisture, and if the bees cannot reach the honey easily use the stimulative feeder over the cluster and you will find that it will pay you well. Remember that bees need

water at this time of the year and if it is not supplied to them in shape of thin food they will perish by thousands in their endeavors to obtain it, and yet great care should be taken not to stimulate the bees at the wrong time, as too much observation and experience will teach you how to regulate these matters better than we can. While the atmosphere in the brood nest, at this time in the season should be moist yet it is fatal to the bees if it be cold and clammy. It must be warm as well as moist and it is to gain this condition that we contract the brood chamber so that the bees will fill it to the outside. In sections where it is warm enough, combs may be added just as fast as the queen can fill them with eggs and the bees cover the brood, being careful not to spread brood too fast. Do not be in too great a hurry to remove packing and cushions, but leave them until the last traces of frost and chills are gone. Look out as soon as possible for feeble queens and queenless stocks. Unite all weak stocks, as one strong one is better than several weak ones and less attention will be needed to keep them alive. It is a good plan when the weather is warm enough, to remove all the combs from a hive and cleanse it thoroughly by brushing out all the dead bees, dirt, etc. If the cushions over the brood chambers become damp, remove the caps when the sun is out and let them dry; after this turn them over and repeat the operation. If the water stands in puddles around the hives it is best to adopt some means to drain it away, as it will not only dampen the hives causing the combs to mould but also drown large numbers of bees when they fly out.

We would again urge upon you the importance of having everything prepared before the season opens. This advice applies more particularly to those who lack experience, as our successful apiarists attend to this matter carefully.

If you choose to feed some artificial pollen, take a box, place it in some sheltered sunny corner of the apiary, put in it some wheat flour throwing in a few small stones on which the bees may alight. To get the bees started at work on it, place a small piece of comb honey in the box and soon you will find the bees hard *at work*. They will discontinue carrying in the flour just as soon as natural pollen appears.

While we strongly advocate stimulative feeding yet we would caution the inexperienced against commencing too early and feeding too much thin food. All that they need is just enough to keep the brood supplied and supply the needed water.

In closing we would repeat the advice as follows:

Keep the brood chambers well contracted and your colonies snugly packed and warm if you want good strong stocks when the honey flow comes.

CORRESPONDENCE.

EDITOR AM. APICULTURIST:

Dear Sir:

Allow me to acknowledge the receipt of a sample copy of the "Apiculturist" received a short time ago. Though bearing date of May, 1883, it was the first copy I had seen, having been during the past season on my way to and travelling through this state. I left Omaha, Nebraska, the latter part of April, 1883, visiting the apiaries of Mr. Van Dorn at that city, Mr. Hawly at Lincoln, attended the beekeepers' convention at Independence, Mo., and visited a number of the apiaries in the vicinity.

I also tarried at the establishment of J. A. Nelson at Wyandotte, Kansas, and was pleasantly entertained by friend E. M. Hayhurst and lady at Kansas City, Missouri. I proceeded thence to Chicago, *via* Atchison, Kansas and St. Joe, Missouri, calling on Mr. Newman of the American Bee Journal while passing through the city, leaving on an evening train for my former home in Toledo, Ohio, after an absence of over two years. After visiting the apiaries of Messrs. Williams, Christiancy, Lewis and others in the vicinity, I proceeded to New York City, remaining a couple of weeks, during the opening of the Brooklyn Bridge. From there I continued by sailing vessel to Jacksonville, Florida, arriving about the middle of June. Since that time I have been looking up the bee interests of the state, travelling by sailboat at my leisure during the summer months. I arrived here the middle of December, 1883, and expect to make this my home, at least for a time. New Smyrna is considered the great centre of the mangrove district, and judging from the vast quantities of mangroves in sight, and those passing through the Hillsboro River, it would appear to be a paradise for bees. I am informed it continues in bloom from four to six weeks. The palmetto saw and cabbage afford quantities of honey also. The soft maple has been in bloom for fourteen days past, which will be followed by other honey-producing plants until April, when I am informed feeding must be resorted to to keep up brood-rearing. Like myself, many of our northern apiarists were led to believe that Florida was the only place that bees could be kept the year through without loss, and therefore considered by many the best state for successful apiculture. Had the New Smyrna correspondent of the bee journals north given both sides of bee-culture and honey-production in Florida, his readers would have found that it was not all gold that glittered, and that Florida apiculturists too had disadvantages to contend with not down in the books. I allude to the depredations of the large red ants that will attack a colony of bees and utterly destroy it before morning, as they only are about at night. Safety is only at the price of eternal vigilance, or standing the hive on legs inserted in cans of water. They overpower the bees, biting their wings and clean out brood and honey.

The next trouble is about the time of queen-rearing. The dragon fly at times renders it almost impossible to secure the fertilization of a virgin queen. This I have from good authority, the party informing me having lost about eighty per cent of his young queens from that cause. I understand there are three species of birds that prey on the bees besides bugs of various kinds. However, the dragon flies and ants are the greatest enemies to the apiculturist. Were it not for the great advantage the climate affords in brood-rearing, bee-culture would prove an impossibility; though for a residence I could with my last season's experience ask for nothing better. As for mosquitoes on the coast, I cannot give my experience as yet; so far fleas are my greatest enemy, though not worse than in Kansas.

Sand flies, too, I have found annoying at times. But Florida would indeed be a paradise (for tramps) were there neither fleas, sand flies, nor mosquitoes. But Florida has its disadvantages, as well as any other location. You may possibly hear from me again later, in regard to "Facts from Florida." I prefer to write from

experience rather than hearsay, and as I have yet to hear of the first correspondent that mentioned the disadvantages I alluded to above, I think it proper to include them with the advantages of the locality. Since my arrival I have visited the apiaries of Messrs. Lewis, Olsen, Sheldon, Barnet and Bowley, Matthews and Goodwin, McFarlane, Hart and others, aggregating nearly eight hundred colonies within four miles of New Smyrna, which I think is conclusive that the immediate locality is amply stocked. No doubt good locations could be secured ten or twelve miles farther south, with water communication to either New Smyrna or other towns south.

Mr. Darius Barber of De Kalb Junction, N. Y., has been passing a few weeks at this place. I find him agreeable and well posted, as he and his brother are among the most prominent of the apiarists of northern New York.

J. Y. Detwiler.

New Smyrna, Volusia Co., Fla., Jan. 28, 1884.

Editor of the Am. Apiculturist:

Dear Sir,

It has almost become an axiom with apiarists that the queen has entire control of the amount of brood reared.

I do not wish to be understood as ignoring the fact that the season of the year, flow of honey, presence of pollen and similar conditions have an effect on the brood-rearing, but the point we are aiming at is the queen *versus* the workers.

How often we hear the remark, "this queen is a poor layer, or that one is very prolific, hive running over with bees and brood, etc."

I believe many a queen has been condemned as worthless when the fault lay with the colony to which she was given.

In the early part of last summer, being desirous of testing the newer races, I purchased a Cyprian queen and reared several daughters from her. I put the young queens into three-framed nuclei and by the time the honey season closed they were fair colonies but had developed some traits of character, to me not desirable, and on the whole I concluded they were in no way superior to my Italians; so I removed them and introduced tested Italians about Oct. 1, at which time there was but little difference in the amount of brood in Italian or Cyprian colonies of equal strength; the most in the Cyprian colonies if either.

Early in December, I gave my bees a final looking over, to see if they were all right for winter, finding no capped brood, except one stock recently fed, until I came to my Cyprian colony; this one had my Cyprian queen, and contained two frames well filled with brood. Next, I looked at the Cyprian stocks where I had introduced the tested Italian queens, and to my great surprise found from two to three frames of brood in each, with plenty of bees hatching. Now I have in my yard own sisters to these very queens and within a day or two of the same age, that were not breeding at all. I think the reason is obvious: the Italians do not care to breed late, the Cyprians do; consequently the Italian queens having Italian workers stopped breeding, while the same class of queens with Cyprian colonies gratified the desires, if I may so speak, of their workers and bred late. This I think shows that the queen will at times shape her work to suit the workers. At any rate, I shall be slow in the future to con-

demn a queen for not laying until I have tried her in more than one colony.

C. M. Goodspeed.

Thorn Hill, N. Y., Dec. 17, 1883.

NOTES AND QUERIES.

Mr. J. P. McElrath, of Asbury, Warren County, N. J., sends the following item for the consideration of Prof. Hasbrouck and Mr. James Heddon:

"The authors of the 'Maison rustique' impute purging to the bees feeding on pure honey, which does not form a food sufficiently substantial for them, unless they have bee bread to eat at the same time, and advise giving them a honey comb taken from another hive, the cells of which are filled with crude wax or bee bread.—

Thomas Weldman, *3rd edition, London*, 1778.

We had our last year's subscription list rewritten at the beginning of the year and were not aware until lately that the copyist in transferring the addresses had made some mistakes. This has caused some trouble and we hope that any one who does not receive the journal promptly will notify us at once, and we will attend to it.

A number of our subscribers will find this number marked "subscription expired" and they will greatly favor us if they will kindly renew their subscription *at once*. For convenience we would prefer that you send us 75 cents for the rest of the year so as to begin the next year in January. If any persons who have paid for renewal receive a marked copy they will please consider it a mistake on our part and no intention to call for a second remittance.

If all persons who send in clubs will state what number the year should begin with it will save further trouble. We acknowledge the receipt of the subscriptions by stamping upon the first Journal sent the words "subscription received."

We take pleasure in noting the following action of the Maine Beekeepers' Association regarding Mrs. Lizzie Cotton, and we hope that the time will soon come that our system of associations will be so thoroughly organized that every kind of fraud and every danger that threatens the interests of the beekeepers will be speedily attended to and not allowed to exist for years. We quote as follows:

"The work of the afternoon session, Friday, was opened by a discussion of Mrs. Lizzie Cotton of Gorham. The matter was introduced by the reading of a letter from Mr. S. M. Locke of the American Apiculturist, urging that the Maine Beekeepers' Association take some action expressing their disapproval of the course and teachings of Mrs. Cotton. In reference thereto the following resolve was adopted and recommended that it be given the widest circulation through the various agricultural and other papers of the State.

Resolved: That the Maine Bee-Keepers' Association here assembled denounce in the strongest terms the transactions and teachings of Mrs. Lizzie E. Cotton of West Gorham, Maine, and warn all persons from having any dealings with said party.—*Lewiston Journal.*

Prof. A. J. Cook sends the following, and we take great pleasure in placing this law before our readers; it gives evidence of careful study, and should be enforced. While we *know*, as Moses Quinby stated years ago, and as others

have proven, that foul brood can be effectually cured by the starvation plan; yet in the hands of the inexperienced it means spreading of this dread disease. Henee we consider this law a benefit to the beekeepers.

Lansing, Mich.

FRIEND LOCKE:

As I am having many inquiries regarding our foul-brood law, I thought perhaps you would like to publish it.

STATE OF MICHIGAN.

FILE NO. 54.

HOUSE OF REPRESENTATIVES.

NO. 96.

[INTRODUCED BY MR. ROOT.]

Recommended by Committee on Horticulture.

LANSING, MICH., Feb. 3, 1881.

A BILL

To prevent the spread of Foul Brood among bees, and to extirpate the same.

SECTION 1. *The People of the State of Michigan enact*, That it shall be unlawful for any person to keep in his apiary any colony of bees affected with the contagious malady known as foul brood; and it shall be the duty of every beekeeper, as soon as he becomes aware of the existence of said disease among his bees, to forthwith destroy or cause to be destroyed all colonies thus affected.

SEC. 2. In any county in this State, in which foul brood exists, or in which there are good reasons to believe it exists, it shall be lawful for any five or more actual beekeepers of said county to set forth such fact, belief or apprehension in a petition addressed to the judge of probate, requiring him to appoint a competent commissioner to prevent the spread of said disease and to eradicate the same; which petition shall be filed with, and become a part of, the records of the court where such application is made.

SEC. 3. It shall be the duty of the judge of probate on the receipt of the petition specified in section two, of this act, to appoint within ten days thereafter a well known and competent beekeeper of said county, as a commissioner, who shall hold his office during the pleasure of said court; and a record of such order of appointment, and revocation, when revoked, shall be filed as a part of the records of said court.

SEC. 4. It shall be the duty of said commissioner, within ten days of his appointment as aforesaid, to file his acceptance of the same with the court from which he received his appointment.

SEC. 5. Upon complaint of any two beekeepers of said county in writing and on oath, to said commissioner, setting forth that said disease exists, or that they have good reason to believe it exists within said county, designating the apiary or apiaries wherein they believe it to be, it shall become the duty of the commissioner, to whom such complaint is delivered, to proceed without unnecessary delay to examine the bees so designated, and if he shall become satisfied that any colony or colonies of said bees are diseased with foul brood, he shall without further disturbance to said bees, fix some distinguishing mark upon each hive, wherein exists said foul brood, and immediately notify the person to whom said bees belong, personally or by leaving a written notice at his place of residence, if he be a resident of such county, and if such owner be a non-resident of such county, then by leaving the same with the person in charge of such bees, requiring said person, within five days, Sundays excepted, from the date of said notice, to effectually remove or destroy said hives, together with their entire contents, by burying them or by fire.

SEC. 6. If any person neglects to destroy or cause to be destroyed said hives and their contents in manner as described in section five, after due notification, he shall be deemed guilty of a mis-demeanor, and punished by a fine not to exceed fifty dollars for the first offence, and for each additional offence he shall be liable to a fine not to exceed one hundred dollars, at the discretion of the court; and any justice of the peace of the township where said bees exist shall have jurisdiction thereof.

SEC. 7. The commissioner shall be allowed for services under this act, two dollars for each full day, and one dollar for each half day, the account to be audited by the board of supervisors.

SEC. 8. In all suits and prosecutions under this act, it shall be necessary to prove that said bees were actually diseased or infected with foul brood.

Mr. Chas. Dadant of Hamilton, Hancock Co., Ill., writes:

To detect adulteration of beeswax, dilute water and alcohol in a vial, about three-fourths of water, one-fourth alcohol. Then put in the vial, a small piece of wax which you know to be pure, and add more alcohol if the wax goes to the bottom; or more water if it floats, until you have given to the mixture the same specific gravity as that of the wax. The wax will then remain floating inside the liquid. Your testing apparatus is now ready. If you have wax with tallow, or paraffine, and put a small piece of it in the vial, it will remain at the top of the liquid, the specific gravity of tallow and paraffine being less than the mixture. If it contains rosin it will

go fast to the bottom, the rosin being heavier than pure wax.

In testing, you should take care that the sample contains no air, as the smallest quantity of air would change the specific gravity of the sample. In testing foundation, therefore, the sample should be thoroughly melted before testing; so as to exclude all air from the inside of the sample. This test is cheap and conclusive. There may be a slight difference between one sample of wax and another; but it is not so as to exclude the clear discovery of tallow or paraffine, which will float beautifully.

We hope that this will be of service to many.

ANSWERS TO QUESTIONS

(in Feb. and March Nos.).

ANSWERS BY P. H. ELWOOD.

1. Yes. I think but little loss to bees and much gain to beekeepers when surplus comb receptacles are on the hive.

2. I have had no natural swarms since I commenced to keep bees in movable comb hives. Let some one answer who has tried the experiment.

3. They sometimes cut it down if they need the wax more in some other place.

4. No.

5. Occasionally. Probable cause, "pure cussedness."

6. Not until larvæ are hatched.

7. Not until there are more larvæ hatched, depending on temperature, etc. I have never had to fumigate any. In a warmer climate I suppose it may be necessary.

8. No.

9. A goodly number of beekeepers have it. It will be hard to tell which is right. It is probably one with wooden separators.

10. A colony of bees work best when allowed to swarm when they please. They work better without a queen than when in a condition known among beekeepers as having the "swarming fever." Sometimes it is best to choose the less of two evils.

Starkville, N. Y.

ANSWERS BY L. C. ROOT.

1. Yes; and if all conditions are right, the loss by not using frames filled with full-size sheets of foundation are, as a rule, underestimated.

2. If the methods of operation are correct, the colony which is furnished with full cards of good foundation will give best results.

3. As a rule, yes, when honey is gathered rapidly. Sometimes, when the flow of honey is scarce, they will chew down the foundation, but not, in my experience, to convert it into a starter.

4. No. The sweetened water given them without the peppermint, etc., will answer the same purpose.

5. No.

6. If care is taken to keep all boxes, that have pollen in any of the cells, by themselves, and the honey is kept in a proper room, it will seldom be found necessary to use brimstone.

7. Boxes that contain pollen may be brimstoned, or the pollen and larva may be removed and destroyed.

8. It is said that nothing is impossible, yet for practical results it is safe to say no.

9. There are many well-arranged racks for surplus boxes. It would be difficult to say which is best.

10. As a rule, they will if rightly managed and not kept queenless too long.

ANSWERS BY J. E. POND, JR.

1. Bees under the swarming impulse do prepare themselves in advance (slightly of course) for the work of comb building, by filling themselves to their utmost capacity with honey. I think a gain of five or six days will be made by hiving a new swarm on frames filled with foundation. They will at once utilize the honey they bring with them by drawing out the foundation and the queen can commence laying, as in one instance, with myself, during the first five or six hours.

2. I do not know, as I never tried the experiment. I shall test the matter this season fully. I know however some considerable gain will be made by hiving on frames of foundation and, I believe a gain of five or six days at least.

3. I have never given any attention to the subject so cannot say, and I don't care to theorize on it.

4. I have not, neither do I believe any benefit is derived therefrom.

5. I have never had any experience of the kind, and have no idea why such a state of things should exist.

6. I usually brimstone comb honey in about four or five days after removing, in very hot weather, and seldom have to go through the process again.

7. In one or two instances (owing I suppose now to the comb being kept in a cool place) I have been obliged to fumigate the third time; the intervals were some two or three days if I remember rightly.

8. I do not think it possible for virgin queens to mate, after having been wintered through. If it were, I see no reason why they should not produce worker eggs that were good.

9. Every man will say the stock he uses is the best.

10. No, sir! I can answer thus most emphatically, as I have tried it several times. They are too much taken up in the first place with the attempt to rear a new queen, and again they are constantly troubled with robbers, who seem to know intuitively when a colony is queenless. It is possible, however, that where it is desired to have no increase, that enough surplus honey may be thus gained, to make up for the deficiencies caused by the lack of inclination to forage.

ANSWERS BY JAS. S. LORD.

1. Yes. The swarms hived on full cards of foundation will be as far advanced at the end of four days, with the advantage of no drone comb in the hive as the one with starters will be at the end of ten days and one-third drone comb.

2. The time of hiving would make a great difference. If honey was coming in very slowly, the one with full sheets of foundation would be at the rate of one hundred per cent ahead, but if there was a good flow of honey, it might not be more than twenty-five per cent ahead.

3. If the bees had nothing to do at the time the sections were given them they might tear it down and start on what was left when the honey did come, but if there was honey coming to keep them busy they will use the whole surface.

4. I have used tobacco smoke, peppermint, and onions, but for the last two seasons I have mixed the frames with bees when uniting and have had as good success as I had before and with less work.

5. I have never had occasion to remove all the brood at the same time I removed a queen, so I am unable to answer this question.

6. Ten days.

7. Once, one week after the first time.

8. I never have wintered a virgin queen.

9. I like the one made with two side pieces with $\frac{1}{4} \times 1\frac{3}{4}$ inch strips nailed across the bottom one-fourth inch apart, and two end boards held up to the sides of the outside section by two strings, running across the end of the sections, and wound between the end of the end board and a little tin disk held to the end board with a screw through the middle. This kind is the easiest cleaned after being used once and the easiest stored away for winter; besides it is very cheap compared with the most top cases I have seen or used.

10. Yes, if allowed to start queen cells.

ANSWERS BY G. W. DEMAREE.

It is a little irregular for one to answer his own questions, but as I did not ask them on account of not having an opinion of my own, but rather to draw out the views of others the case is changed somewhat.

1. Yes. Observation has convinced me that new swarms leave the parent hive better prepared to build comb than they ever are under other circumstances. And if they are not allowed to utilize this accumulated force by reason of having full sheets of foundation at hand to work out, there must necessarily be some loss; and I think that when the matter is figured, to find the "loss and gain," the result will show that the foundation really costs the apiarist double what he actually pays for it in cash.

2. It depends much on the flow of nectar as to the result of the experiment. In a majority of cases the apiarist will scarcely find difference enough, in favor of the colony provided with the extra help, to fully square the account for extra labor and cost of foundation.

3. Much depends on the honey flow as to the action of the bees in this matter. Those who have never observed closely would be astonished to

know how common it is for bees to "trim down" the very thin sheets, using the wax to thicken them up to respectable starters.

4. No. Quite extensive experimentation has satisfied me that the whole thing is a mere conceit.

5. If a novice should ask this question I should be tempted to answer that it was a case of robbing. But I have seen this murderous conduct going on at a time when bees would pay no attention to honey when exposed on top of a hive all day long. I have but a dim idea of the cause and hence give it up.

6. As the bee-moths deposit the eggs before the honey is removed from the hive, I feel certain that no time can be fixed when the larvæ will hatch and commence to prey upon the combs. I have sealed-up packages when first removed from the hive and found them infested by the moth larvæ in eight or ten days after. These experiments proved that the eggs were present when the honey was removed from the hives. I would avoid the use of brimstone if possible; it certainly does the honey no good. I have succeeded in getting along without it. When I remove my comb honey from the hives it is arranged in tiers on the store-house floor (sheets of paper under it) so that the light and air come in contact with the surface of the combs. Managed in this way I have had no trouble with worms. Of course I keep a close watch over it while in bulk.

7. Answered above.

8. I have had queens mated late in the fall which never laid eggs to my knowledge till spring; and notwithstanding this irregularity made excellent queens. But when queens fail to mate in the fall they have never been of any service to me. I believe it impossible for them to mate after twenty-three days.

9. Now you have launched into a wide, wide field. If any body hasn't got the best "case" or "rack," or "fixin'" to hold sections, please hold up your hand. "Mine," of course. I like a case best which is just the size of the brood department and just deep enough for one tier of sections with strips of tin for "rest" for the sections, and with movable division-boards (or partitions) the same depth of the case, provided with projecting strips of tin for "rests"—the balance can be guessed at—all so arranged as to "tier up" handy.

10. They always work well for me; but it is no remedy against swarming in a good season, as far as I have tried it.

QUESTIONS AND ANSWERS.

BY J. E. POND, JR.

Several questions have been asked me by letter which, owing to pressure of business, and illness and death in my family, I have been unable to answer personally. Thinking it may however reach the eyes of my correspondents, and perhaps be of value to some others of the readers of the Apiculturist, I will answer them through its columns, and I am more inclined to do so from the fact that they are all of a practical nature, and such as are liable to come to the mind of beginners at any time.

1. Is smoking injurious to bees?

Several have asked this question, and I do not wonder at it, for at first thought it would seem so to be, but my experience has taught me that when used judiciously, no injury can result from it. In one way, however, colonies can be injured, viz., by opening the hives more often than is necessary, and thus disturbing and exciting the occupants. In order that the best results may be had, a colony should not be opened and pulled over oftener than actual necessity requires. Bee-keepers of experience can generally tell by a single glance whether all is going on well with a colony; and unless something is needed to be done, it should be allowed to work in peace and quietude; and if this is not done, a profitable yield need not be expected.

2. What shall I use for stimulative food?

A diluted syrup of granulated sugar, or diluted honey; the sugar syrup is preferable, but either will answer the purpose well. I do not advise stimulating as a rule in this section, as more injury is apt to be done thereby than will be overbalanced by good results therefrom. A good colony of bees, having plenty of stores, will ordinarily rear brood in early spring as fast as is safe for them to do. We are liable

at any time before the first of May to severe frosts, and should a colony be urged to rear more brood than they can cover, it will be chilled and consequently die. Bees love their brood and will cling to it with great tenacity, but love of life is stronger, and on the approach of severe cold weather, they will cluster together for warmth, to secure their own safety, and allow the brood to do as best they can. The actual condition of each colony must determine the matter of stimulation, but as a rule it is better to go slowly. All we desire is to have a force of foragers on hand to gather the first honey yield, and to do this we need not urge brood-rearing very early, as it only requires about thirty-five days to raise bees from the egg, that can attend to all the housework, and allow their elder sisters to forage as much as they choose.

3. Is it advisable to unite weak colonies in the spring?

If any queenless colonies are found it will be well to unite them with others that are weak; if not, I should advise building them up, by giving them frames of brood from such colonies as are strong enough to spare them. Colonies, in spring, consist mostly of old bees, and if united they will live no longer than if kept separate; it is no trouble to build them up, and one will be astonished to see how easily a very small colony can be so built up. Mr. Doolittle once had a colony in spring that consisted of a queen and less than one hundred bees by actual count. This colony he built up so that it not only gathered honey enough to winter on, but gave him a surplus beside. I, myself, had a colony with only bees enough to cover a small part of an L. frame. I built it up so that it proved a first-rate colony, and was selected in the fall by a purchaser in preference to any other colony in my apiary.

4. Can I raise pure bees from an Italian queen, mated with a drone from a hybridized Italian?

This is a mooted question. Dzierzon, the great German authority and the father of the theory of parthenogenesis, claims that the drones of mismated queens are pure. I may be bold in so asserting, but I do not agree with him. I do not believe that it is possible to keep blood pure after it has once been mixed; but discussion on this matter will be of no use. One thing is certain, viz.: We know that drones from purely mated queens are safe to breed from. All others may be unsafe; so that we can easily keep on the safe side by breeding only from purely mated stock.

5. How old must a queen become to be unable to mate with a drone?

No one can give a positive answer to the above question. I once had a queen mate successfully on the twenty-eighth day after she emerged from the cell. I think, however, they should mate, if the weather is favorable, between the fifth and twentieth day after leaving the cell; and, unless as a matter of experiment, I should wait no longer for her.

Foxboro, Mass., Feb. 18, 1884.

To the Editor of Am. Apiculturist:

Permit us to answer the question of Mr. L. C. Root, of Mohawk, N. Y., in Dec. No. of your Journal, in regard to the fertilization of queens in confinement.

We formed a tent from "dairy cloth" six feet square, covered it with ⅞ ceiling lumber with about an 8 in. fascia around the upper part. We then formed a number of nuclei out of capped brood and young bees, *that had never been outside of a hive.* In one-third of the number we had an excess of drone brood. After we noticed the drones commenced to fly in the tent, we inserted queen cells in those that had no drone brood. We placed feed in tent, also some flower pots, etc., in a manner to change the monotony. The bees and drones were all at home flying out and around in tent returning home to their respective hives, and when the queens came out they were also at home.

We had the pleasure of seeing queens fertilized, and examining them as they returned to their respective hives. We allowed the queens to remain in the hives long enough to fill with eggs, but those that had drone brood, we

kept supplied with brood and drone brood from colonies from which we wished to breed. We were successful in nine out of ten and would have been in that, but one queen was deficient in her wings, and although we tried surgical operation for engrafting a wing we failed in enabling her to fly. The conditions are: there must positively be no old bees in the tent, else they will cluster on the tent, but young bees will return and there will be no confusion. We tried a similar plan in 1879 but were not so successful as we allowed old bees in the tent and all was confusion. We have been experimenting some ever since.

We raise our own stock and can mate them as we wish. Try our plan, it will not cost you over $3 and we are sure it will repay you, but mind the conditions. No bee that has ever flown must be left in; place water, syrup and meal, in the tent, and you can beautify it by putting pots of flowers, etc., in it.

J. R. CALDWELL, *Hoopeston, Ill.*

LETTER BOX.

BROTHER LOCKE:

I have to report that March—this present March—has been unusually hard on our bees. Heretofore I considered my bees "wintered" when the first of March was reached. But March to this date has been the hardest of all on the poor bees, warm enough for the bees to fly, but too cold and chilly for them to fly safely. Our bees still hang on to life and will survive it all, if the weather will settle down soon.

G. W. DEMAREE.

DEAR SIR:

Bees so far are wintering well where they were given good stores and well packed. There have been but three flying days since Dec. 1. These were Dec. 11 (Feb. 18 they flew a little from some hives), Mar. 14 and Mar. 18. The 18th was a general and wholesale fly. I took the advantage of the 18th to look into nine stocks. Some had used about eleven lbs. of stores others not more than five or six. Those that had used the most stores had the least number of dead bees, were the strongest and had the most brood. Some of the patches of brood were 4×7 inches in one or two combs, and were the stocks that were packed the warmest. Six years experience has shown that from two to four inches packing under the bottom of the hive (the hives being double bottomed) have invariably wintered the best. They flew the least each winter and had the least number of dead bees every spring.

H. L. JEFFREY.

Marbledale, Ct.

Barrington, R. I., Feb. 11, 1884.

MR. S. M. LOCKE:

DEAR SIR,

I wish to thank you publicly for your earnest endeavors in establishing a bee journal for beekeepers, and one on which they can rely in every way.

The "question box" alone is fully worth the price of the journal, and when we consider the other valuable matter to be found in each number, we cannot but feel greatly indebted to you for your zealous labors. The journal deserves the earnest support of all beekeepers; and, if, in a few years, it is not the leading paper of its kind in America, it will be simply because beekeepers are unable to appreciate the value of a good thing when they have it.

Wishing you success in your enterprise, I remain, yours truly,

A. C. MILLER.

NOTICE.

Mr. J. E. POND, Jr. of Foxboro, Mass., wishes to correspond with every beekeeper in Massachusetts who is in any way interested in organizing and establishing a first-class beekeeper's association in this state. It is time that we had such an association; we hope that every person who reads this, and is in any way interested in the matter, will respond at once.

We promise to do our share of the work.

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

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INCREASE.

BY L. STACHELHAUSEN.

A VERY important part of the management of the apiary is the increase of the colonies, and on this point the most prominent apiarists are by no means of the same opinion. The very question, if the number of colonies is to be increased, in order to get the greatest possible quantity of honey, is met with more or less conflicting answers. Neither is there any harmony concerning the point, whether natural or artificial increase is preferable; and it is even controverted, whether the increase should be attempted before, during, or after the height of the season.

Generally, the rule is adopted, that "one strong colony, if not allowed to swarm, will gather more honey than the same colony and its increase would gather, if a swarm were allowed to issue.[1]. But this will only prove true, in cases where the honey flow is short and early without any fall harvest. The contrary will take place, whenever the main honey flow is an extensive one, and followed by a fall harvest. We may see this confirmed by many reports which are made by beginners, of good honey harvests, together with a strong increase, and these results become considerably larger, when we can reduce at the right time in the fall, by uniting the colonies to the normal figure. Concerning this question, every apiarist ought to consider what Demaree says in this Journal: "Each apiarist must study and fully understand his location and work square up to its requirements, if he would obtain the best results."

Lately, several prominent American apiarists have declared in favor of natural increase, in spite of several well-known disadvantages, from which artificial increase is free. Some are even not afraid to clip the wings of the queens, in order to facilitate hiving the swarms, although other disadvantages are produced thereby. To this they are certainly led by

[1] J. E. Pond, jr.

many reasons, as for instance, by the observation that a swarm, placed in a hive provided only with starters, builds not only a number of beautiful worker combs, but commonly surpasses an equally strong but artificially formed colony, to which brood-frames and empty combs have been given. What may be the cause of this? We answer: since a natural swarm builds almost exclusively worker combs at first, they may be allowed to build whole combs. The building instinct being satisfied and the colony being obliged to form cells for brood and honey as rapidly as possible, the energy of the bees is unusually aroused, and this continues for some time during the main honey-harvest. Such colonies therefore surpass very often not only an artificially formed colony, but sometimes even a colony which was prevented from swarming.

If we consider this well when forming artificial colonies we shall be able to get the advantages of both methods without their disadvantages. I know of three methods of forming artificial colonies which meet the above mentioned conditions, and which are, to my knowledge, but little known and little or never applied in this country.

1. Brushed swarms. This method of forming colonies was first established by friend Gravenhorst, and the method is as follows: at any place of the apiary, but not too near the old colony, place an empty hive provided with seven or eight Langstroth frames (containing exclusively starters) and a division board, which separates the space occupied by these frames.

Then the hive containing the old colony is opened and all its frames together with the bees are put in comb-baskets. In this proceeding we must not be very cautious, in order that the bees may fill themselves sufficiently with honey. If many bees have remained in the otherwise empty hive or box, we must brush them out of it into the new hive and place the old hive forthwith back to its old stand. Then all the bees are brushed from the frames into the new box, without minding the queen, and the brushed-off combs are replaced in the old hive. It is well to sprinkle the bees thus brushed off, with some sugar water, whereupon both hives are closed. The whole thing may be done in a few minutes. A great part indeed of the brushed-off bees will return to the old hive; they ought to be given a young queen forthwith on the second or third day, and they will be reinforced by runaway bees in a short time. However, a great part of the bees will remain with the queen of the new hive, especially all the young bees. Shortly the new colony will become lively with the bees flying to and fro. Such colonies are easily and rapidly formed and if no mistake be made, they surpass natural swarms not unfrequently. I tried about twenty different methods to form artificial colonies in my long practice as apiarist, and according to my ex-

perience I hold this method to be in most cases the best one.

2. Alighted swarms. These are established in the well-known way, by placing an empty hive which is provided merely with starters, before a strong colony. We must give, however, the new hive at first for the beginning, *one* brood frame, where the queen is imprisoned, in order to make it easy for the bees to cluster on. A young impregnated queen will do; but it is better, to take the queen of the old colony for the swarm, and if this queen should be found on a frame with a brood issuing, this frame with the adhering bees must be given immediately to the new swarm without imprisoning the queen, and the old colony must be re-queened in some other way. This brood-frame must be taken away from the colony the next day, and the bees brushed from it back into the hive, in order to establish the latter completely in the state of a swarm.

Such artificial swarms consist now exclusively of worker bees, which are but little apt to take care of the later issuing brood. To remedy this evil, we must brush immediately in establishing the swarm, some young bees from some brood-frames into the hive.

The old colony is now in a less favorable condition; it is deprived of all carrying worker bees and must be fed so that the young brood shall not suffer. But even then it takes always several days, before any bees fly out again to gather food.

In order to avoid this evil, Mr. Gravenhorst gives all the frames together with bees to another hive, which has just furnished a brushed swarm, *i. e.*, we unite the two old colonies and obtain thereby a very strong colony, which will yield one or more after-swarms. If we intend to prevent after-swarms, we must add on the eighth or ninth day an impregnated queen in the cage, and form with her an alighted swarm the next day; at the same time we must cut out all queen cells except one. These last alighted swarms consist almost exclusively of young bees and build the most beautiful worker combs. The old hive has no longer any unsealed brood, and does not suffer therefore by the displacement.

3. Gathered swarms. The establishing of these gathered swarms is very complicated, because they must be transported to a point two miles or at least one mile distant; we can recommend them, however, when some colonies become so strong, that they can be prevented from swarming only by taking away a number of bees. A queen in the cage is put in an airy transportation box, and so many bees must be brushed into the same from the different colonies, that the swarm is strong enough, and the box is carried to the new place. In the evening the swarm is put in its future hive, and the cage is loosely closed with wax, leaving it to the bees to liberate the queen. Of course, such a swarm consists likewise only of starters.

The establishing of such swarms

is more particularly described in "Gravenhorst's Praktischer Imker."

In the preceding remarks I called the attention to the point, that such swarms should be furnished with neither empty combs nor foundation. It would not be economical to do so, and it is a mistake to believe that we assist a swarm by giving it a completely finished hive. The swarms ought to be formed by no means later than two weeks before the main season of gathering honey by the bees begins. If, however, this season has already commenced, we may make an exception from the above rule and give the swarm empty combs which are about half-finished. Afterwards, when the swarms have completed the few combs given to them and they begin to build cells for drones, we must give them foundation. Now we may give the swarms empty brood-frames, which perhaps ought to be removed from other hives, to considerable advantage, in order to enlarge their brood-nest, whereby they are not only reinforced but likewise prevented from swarming again.

I must mention here that we have gone too far in preventing bees from comb-building. In every season, in which the bees are able to build at all, it will stimulate their industrious energy very much, when they are allowed to satisfy this impulse in the brood-chamber. Whenever it be advised not to permit them to build in order to prevent the building of cells for the drones, let the bees finish at least the foundation; this applies especially to spring-time, and nobody will repent of having paid attention to these indeed very condensed hints.

Selma, Texas, Feb. 28, 1884.

OUR APICULTURAL SOCIETIES. FOR WHAT PURPOSE ARE THEY ORGANIZED?

By G. W. Demaree.

Aside from the social features of our apicultural societies, they are of no value if they fail to advance the science of apiculture; to popularize the pursuits of beekeeping, raising it on a level with other popular industries; to educate the public as consumers of the products of the apiary; to "create" and control the honey market, and by concert of action to prevent the frauds and impositions of those persons whose nefarious business it is, to prey upon the industry of others, — if our bee conventions could accomplish all this, what a power for good they would be! In my opinion many persons have erred when finding fault with the utter failures of our great national convention. In its present make up, it is simply an irresponsible body, and when it convenes it has no purpose in view, and hence may do one thing as well as another.

"I've been there, I know how it is." The fault is not rightly laid at the doors of the national convention. The responsibility rests with the local societies. If the local societies would take the matter of organization into their own hands, and appoint delegates to the state conventions, and the state conventions should appoint their delegates to meet in national conventions, such a body would be a great representative power with a work to accomplish, and it would do its duty. I could never be induced to consent to be governed by any irresponsible body, such as any and all of our conventions are, under the present system of organization.

The power rightly belongs to the great mass of beekeepers, and anything to command the respect of intelligent beekeepers must come from that source. A convention for any purpose must necessarily be *representative* in character to make its acts binding. Otherwise its acts can only be advisory. All the "resolves," of our conventions in the past — and they have been numerous — have been mere empty sound. The sooner the beekeepers of this country realize that no great work can ever be accomplished without thorough organization, the better it will be for their interest. I do not wish to be understood as though I stood in opposition to our social gatherings called "Beekeepers Conventions." With all their defects they have been felt all over the land, and I would not discourage them in the least. Let us have them such as they are.

I would like to suggest, however, that these matters be brought up before the local conventions that are to meet in the future, and that they take such action as they may think best, and in my opinion a great representative convention will be the result. I would like to see these matters more thoroughly discussed in the bee periodicals, if it can be done without "pitching into" everybody and everything.

It is a hobby of mine to see bee culture elevated to the highest rank among the industries of the country.

Christiansburg, Ky.

WHAT ARE LANGSTROTH FRAMES?

By J. E. Pond, Jr.

From repeated letters of inquiry received by myself in regard to Langstroth frames, and the difference if any there is between those frames and the Gallup, Bingham, Adair and others, I am led to believe that a vast amount of ignorance exists among beekeepers of to-day relative to the matter. It is not at all strange, however, that such ignorance should exist, for those beekeepers who have recently taken up the business can only judge by what they read, and the names of Gallup, etc., have been used in such a manner as to lead any one, not fully posted, to suppose that there was some real

difference of principle in all the various styles of frames in common use. When, however, it becomes generally known just what the invention of Mr. Langstroth really was, the mystery will be cleared up to the satisfaction of all. I shall make it the purpose of this article to explain briefly just what part the Rev. L. L. Langstroth did bear in inventing and introducing movable frames, hoping that such information will prove interesting as well as instructive.

Prior to the years 1851–2, no really movable frames were in use in this or any other country, the nearest approach thereto being the leaf-hive of Huber, which was a series of frames hinged together so as to open and shut like the leaves of a book, and the bar used by Dzierzon, in a side opening hive; in using this bar, however, the attachments of the comb had to be cut from the sides of the hive every time a sheet of comb was removed. Munn, it is true, did invent a frame to be used in hives, but it took but a few days' use with a colony of bees to show that by aid of propolis his frame was immovable rather than otherwise. In 1852 the Rev. L. L. Langstroth perfected the principle on which he had for a long time been engaged, and gave to the world the *hanging*, sectional, movable frame. This was the first movable frame that was worthy of the name. Munn's frame was only movable when not in use; Dzierzon's was not a frame at all, but a top-bar only, with a sheet of comb attached to it, and could only be rightly termed a movable comb. I have noticed recently that this play upon words, by assuming "movable combs" to be synonymous with "movable frames," has caused a certain society of bee-keepers to assert by vote, that Langstroth was not the originator of movable frames, and that the honor belongs to Dzierzon. Votes of societies may have some effect upon the public mind, but it would require more than the vote of one society to give an honor to Dzierzon which he has expressly stated does not belong to him, and which he has also expressly stated does belong to the Rev. L. L. Langstroth.

This idea of hanging frames on rabbets inside the hive is so simple, that it seems very strange it was not originated long, long years ago; but each day and generation produces its own work, and it remained for Mr. Langstroth to perfect the idea, and thus perform his share of the labor required to raise apiculture from a low plane to a high position among the important industries of the world. That Mr. Langstroth performed his work thoroughly and well, in his invention of the hanging-frame, may be shown by the fact, that no change for the better has been made in it since its first introduction. As Mr. Langstroth used it and recommended its use to others, it was in the same form now known as the standard Langstroth frame. Dr. Gallup and others thought that form of frame

might be advantageously changed by making it shorter and deeper; but this constituted no change in principle, and all hanging-frames in use to-day are entitled to be known as Langstroth frames. My impression is that it would be well to adopt a new nomenclature for frames, by calling the original Langstroth frame the "L.;" the frame originated by Dr. Gallup the "L. Gallup" frame, etc., etc.; by thus doing, all chance for confusion would be avoided, and the honor of the invention placed where it really belongs.

To the Rev. L. L. Langstroth belongs the honor of inventing the principle which gives comb-frames their real value, and makes them movable.

Many attempts have been made in the past, and are still being made, to deprive him of that honor; but all such attempts will prove utterly futile, so long as the records of the United States Patent office are in existence. Beekeepers as a class are honorable men, and only need to learn the truth to cause them to do exact justice to every man; and when they learn the truth as it really is in regard to Mr. Langstroth, they will only be too glad to do him reverence.

The movable frame was the greatest boon ever conferred on the beekeeping public, and its noble inventor has lived and made no sign, during all the abuse that has been heaped upon him, by asserting that he claimed a patent on the invention of another man. This he has done because his simple, earnest faith in mankind led him to believe that time would eventually set him right; and time will set him right too, and generations of beekeepers yet unborn will rise up in the by and by and call him blessed.

Foxboro, April, 1884.

WORKING QUALITIES VERSUS *COLOR.*

BY A. C. MILLER.

THAT we are slowly but surely breeding our Italians bees for color, rather than for their working qualities, is daily becoming evident, and in my opinion it is a serious evil. Especially is it so among the younger class of beekeepers who have had but little experience. They are led to believe that the lightest banded Italians are the best; consequently queen-breeders have to cater to their tastes, and thus a race of lazy "yellowcoats" are gradually springing up among us. We are breeding for looks rather than for honey.

What advantages have these large light-colored Italians over their darker sisters, that we should be so anxious to propagate them?

They are lazy; always ready to steal from their neighbors; they

do not winter well; they commence breeding late in the spring and cease early in the fall; they are not good as honey-gatherers, working but little in steady cool weather, and abstaining from labor when the nights and mornings are chilly; thus they work half-time only, on full pay, eating quite as much as in warmer weather.

I do not say that *all* light-colored Italians are poor workers; I do say, that compared with this breed, the industrious dark Italians with their leather-colored bands seem to me much more desirable. They are hardy; they winter well; they commence breeding early in the spring, continuing until late in the fall.

As honey-gatherers they are excellent, and as a general thing they mind their own business and are easy to handle. I think friend Heddon holds the same views.

While on the subject of bands, I wish to state, that I have in my apiary a swarm of Italian bees having *four* yellow bands. Friend Root of Ohio maintains that no Italian bees have more than three light bands on the horny part of the abdomen; and if a fourth is seen, on close examination it will be found to be yellow down or hair. Now I positively assert that the four bands on the bees of said swarm were all *in* the horny scale. I examined them minutely and at many different times during the summer; and to "make assurance doubly sure" I asked my partner to count the bands carefully, and he confirms my statement. These bees, however, although large and handsome, are lazy, and unless they improve I shall give them another queen. I wish to say a word or two more concerning the handling of bees.

Old beekeepers maintain that the reason novices have so much trouble in handling bees, and are often stung so badly, is owing to their lack of skill. Not thinking this the whole cause of the trouble and wishing to ascertain the secret of the safe handling of bees by experienced apiarists, I made a number of experiments during the past summer.

I had noticed that after handling the bees for a few days, my hands were so strongly scented with propolis and wax that even a wash of alcohol would not obliterate the odor, and that while thus scented, the bees, unless roughly handled, would not sting me. I therefore dissolved some propolis in alcohol, and bathed my hands in the mixture. This proved a success, the bees attacking only the unwashed surface of the skin.

I experimented more fully by omitting one finger in making the application; and this finger was invariably attacked.

In mixing this wash I added enough propolis to the alcohol to give it the color of ordinary tea; this will not make it so strong as to be sticky, and make the odor sufficiently powerful.

Barrington, R. I., Nov. 20, 1883.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p.* 80, *Vol. II.*)

The superiority of the queen over all her subjects appears even at her germination and birth. The mother bee deposits the egg, out of which she is hatched, in a special royal cell, or other bees cautiously carry it into this cell, which has been carefully prepared and adorned by the subjects. The royal cell differs in its shape from all other cells, which latter consist of small hexagonal tubes, the pyramidal base of which is constructed rhombically out of three pieces, and almost all these cells lie horizontally. But the royal cells are perpendicular, so that the opening of the cell is turned downwards and consequently the pupa is lying there head downwards. The structure of the common hexagonal cells shows an admirable economy on the part of the bees concerning the wax, but they use it lavishly when building royal cells. The latter are so strong and thick with wax, that one single royal cell weighs as much as one hundred and fifty common cells. Their interior is round and smooth and has, in proportion to the body of the queen, a larger circumference than that of the common cells. The bees fill the space not occupied by the pupa, with a more abundant quantity of better and more savory food than the common cells obtain. And this royal or rather queenly castle is never erected among other cells, but on a separate spot; it hangs at the rim of a comb, where usually some drone brood is likewise deposited, like an acorn, of nearly a "finger long;" but when the colony is weak, they hang the queen cell on a comb in the centre of the hive for the sake of the warmth and nursing. They are continually busy around such a cell, as soon as it is occupied; they manifest the utmost care, and some bees never go away from it. Some, in the interior, administer to the young queen without intermission; others on the outside prepare ornaments for the royal cell, which consist in hexagonal plates decreasing in proportion towards the end of the cell and becoming smaller and smaller. There is in every colony such a royal cell; in some are two, three and even more. But when the young queen is bred so that she has left her cradle, the bees take down the greater part of the cell, and use the wax where else it may be necessary.

Here arises a much disputed question: of what kind is the egg out of which the queen is bred? Is it an egg in which there is the germ of a royal pupa and out of which no other bee can issue but a mother bee or queen, although the best microscope shows only two branches of eggs in the uterus of a queen, which furnish the drone eggs, and such eggs out of which the common workers issue?

The parson Rev. Schirach, in the

Upper Lusatia, to whom we owe much new and important knowledge concerning the policy of bees, has shed much light on this point. He has proved by many experiments, that a queen may be procreated out of every common worker larva if the latter be not over three days old. He cut out a comb with brood containing eggs, larvæ and closed-up nymphæ, and placed it in an empty hive with a sufficient number of common workers, and every time these bees brought out a queen for themselves. They built a royal cell around a three or four days' old pupa, provided it with better royal jelly (as they always do with queens), and thus raised it. Mr. Schirach at first supposed, and others were of the same opinion, that, by a favorable chance, he had hit every time some cells with one or more queen eggs, *i. e.*, such eggs wherein the germ of a royal pupa was deposited, which the bees might discover by their natural instinct; and some do even assert that such supernumerary queen eggs were in store at different times, in order to supply the loss of the mother bee, if necessary. Therefore he had twelve small wooden boxes made, and placed in every one a brood frame of only four inches out of one hive and at the same time, with eggs and pupæ, and added a few workers; and he found in all the twelve boxes, after three or four days, royal cells with larvæ, and in seventeen days he had fifteen live and fine queens. He repeated this experiment every month through the whole year, and obtained queens every time; indeed, he obtained a queen out of a single live worm, which lay in a common cell.

These experiments make it highly probable, that a queen may be raised out of every common bee larva, and I am confirmed in this opinion by my experience with most of my artificial swarms, which I reared after the method prevailing in Franconia. Whoever tries it, will agree with me. Just take out of any hive a frame of four to five inches square, filled with brood; hang it in another empty hive and place the latter in the place of the other hive; you will soon become aware that the bees, which had flown out of the latter hive in order to gather honey, will enter this new hive, build there some royal cells and procure queens for themselves in the above mentioned manner.

But if a queen may issue out of every common bee larva, it follows: 1. That the external circumstances, for instance, the better food, and the larger cell in which the sexual organs of the bee have greater liberty to develop are the cause, that a queen issues out of a pupa which was to become a worker. 2. That all common bees originally belong to the female sex; that they are incomplete females, but that they need only one grade more to become queens and mothers of many swarms.[1]

[1] Mr. Riem in the Palatinate, goes still further and claims against Mr. Bonnet in his Essays of the year 1770, that his workers had repeatedly laid several hundred eggs in a little hive, in which he had placed empty rose-

Their sexual marks however must be indescribably small, or probably altogether extinguished; else the great Dutch naturalist and dissector Swammerdam, who has so admirably described and illustrated the ovaria of the queens, and Maraldi and Réaumur, would have discovered them. Concerning the development of the sexual organs, it depends mainly upon a certain peculiar kind of nourishment, and upon a cell, where they have space enough to expand in every direction; in default of these two essential conditions, the common bee is condemned to eternal virginity or rather sterility, so that they all are truly females, but a peculiar kind of females, which do not and cannot have any issue, females which at present are not such, but which

frames, and in his Fundamental Laws of a perennial colony, pages 76 and 153, he asserts, that the common workers produce only drones. But just as little as Mr. Bonnet has seen a worker lay eggs in his glass hives, as little could I ever see any which were laying eggs, although I have often and again seen the queen laying eggs, even drone eggs.

A new experience which belongs here, has been published by Pastor Ramdor in the Gotha Weekly for Useful Knowledge, Nos. xx and xxi of 1782. In several hives he discovered drone-queens, which the workers, probably from the lack of proper brood, and perhaps in consequence of the death of the real queen, had raised out of drone-brood, and this in the same manner as they usually raised a genuine queen; they built a royal cell around a drone-papa, gave it probably the royal food, and thus raised queens, which had the head, chest and the whole body of the same form with the other drones, but were more considerable, larger and of a more brilliant color than the latter. Rev. Ramdor has indeed not dissected those drone-queens in order to examine their internal structure, and to prove their equality with the drones, which is very much to be regretted. It is, however, very probable, and may reasonably be assumed, that these drone-queens were of the male sex. But since only drones had been produced in these hives, he means to solve the problem of drone-production by assuming that some of the workers must be able to lay drone-eggs. He supposes even, that they do it not only in queenless hives, but also in good, strong ones, and that, to this behoof, they were, like the queens, impregnated by the drones, whereby also the great quantity of drones in a hive could be explained.

But it seems that the problem is by no means solved as yet, and that we cannot subscribe to this opinion without a more searching investigation and better established experiences. It would indeed be worth the while, to closely investigate such a queenless hive with no other but drone-brood, and to ascertain if there was not among the workers a queen of perhaps equal size, with the workers (to which she is generally similar in shape), since the queen must grow smaller, when the eggs which produce workers have suffered or have perhaps for the greater part, perished. It would further be necessary to dissect all the workers of the hive, and to ascertain, if any, and how many are provided with an ovarium, a not very difficult task, as it must be visible especially at that time; farther, if any of these workers have any marks of a small queen, as for instance, the absence of the spoon or the cavity, and the brush on the hind legs, a smaller trunk, a different shape of the feeders (to gather honey with) and teeth, etc.; and indeed in case that any worker, at the time when the hive had no queen, should produce drone-brood, and be impelled by the want of a queen, to transform itself, so to say, to a halfmother,—if such a worker has any marks which the other workers do not have, etc.

The objections and doubts to which the theory of Rev. Ramdor is exposed are mainly the following:

(a) Where in nature is to be found a well-known instance of animals or insects which are able to propagate only one sex of their kind, and never both sexes, male and female, together, since the first would be useless, as nature never does?

(b) Why have the most celebrated dissectors never been able to discover in the workers the least trace of an ovarium? and why has no observer ever seen a common worker in glass-hives deposit an egg, while we frequently observe the queen doing it, and are even able to distinguish whether she deposits common worker-brood, or drone-brood?

(c) If the workers should have the faculty and impulse to issue drones while together with their own mother, what an immense number of drones would always exist in the hives, even with a good and sound queen?

(d) If the common workers be able to produce drones or male bees, to issue drone-eggs and thus to furnish germ and seed of this sex, why do they never do so in such seasons, when drones are not existing, as for instance, in early spring, or in the latter part of fall, when they are commonly already exterminated, especially as at both these times hives may lose, and often do lose their queens? and here we must not overlook that in strong colonies new brood is issued already about Christmas, especially in not very cold winters.

As a rule, a naturalist ought to be very cautious in his conclusions from the first successful results of his experiments, since it is very difficult to establish the laws and conditions on which living beings depend. What seems often to be downright contrary to analogy and the usual course of nature, is not always so, especially with insects. On the other hand we are prone to draw conclusions from experiments, before they have been sufficiently repeated and carefully examined and varied. Nature has many different ways, and yet reaches the same end. I am, therefore, very incredulous in natural science and cannot give my assent unless I have tried such experiments myself, or know that other naturalists of authority have tried them.

might have become such, if in their first appearance as pupæ they had had another larger cell and other proper nourishment.[2]

Rodheim, Germany, July 25, 1783.

(*To be continued.*)

[2] This is indeed a strange discovery in natural science, and might be called monstrous if it were not proved to a certainty by frequent experience. It seems to conflict with the exterior and interior organization (of the members) of the bee; but there have been discovered within a few years such strange things, as our reason cannot explain, but which are proved by experience, and the naturalists begin to be used to such paradoxes. The more we study nature, the more we shall find that her supposed laws, which we considered as absolute, admit of many exceptions.

It is indeed a principle of natural science, and has been proved by perfectly conclusive experiments, that no living animals can ever issue from absolutely inorganic matter; but to create, and to develop only parts, are two different things. The latter is possible, and happens often enough. Let us hear the incomparable naturalist, Bonnet, about it. He has proved, from sufficient reasons, in his Insectology that the semen or brood-chyle is as well a real nourishment, as an irritating, stimulating chyle or juice. He has shown that it can produce the greatest changes in the inner organization of the embryo. Consequently, it does not seem possible, that, by a certain and more abundant nourishment, parts may be developed in the bee pupæ, which, without this nourishment, would never have been developed. There are many other instances in nature, which confirm this truth. To see this, it is not necessary to enter the laboratory of an observer of polypes; it is sufficient to remember the strange fact, that the cock's-spur can be grafted on the cock's-comb, an operation worthy of the most skilful and experienced naturalist.

When this spur is grafted upon the double wrinkle where the comb was cut off, it is not much larger than a grain of linseed; but now it strikes root and grows half an inch within six months. After four years it becomes a horn, three to four inches long, a real horn like the horn of an ox, and has a bonelike kernel or nucleus like the latter. It is connected with, and incorporated in, the head of a ligamentum capsulare, and by straight ligaments. But according to all probability, the germs of these ligaments must have been pre-existing, although not discernible, in the spur and the comb, and their tendencies were different from those which they accepted after the grafting; for the head of the cock is a very different soil for the spur, than the one where the latter was to grow and become fit for its purpose. It is well known, what changes the chyles or juices may produce according to their properties, their abundance or deficiency, and that the least injury to tender fibres often affects the whole subsequent development and growth, and may change shape, portion, and solidity. And thus the horny substance of the spur, when it consolidates with the fleshy substance of the comb, may produce new changes.

We may therefore well believe, that the stronger and more abundant jelly food is for the organs and members of the future (artificial) queen, a kind of impregnation and fertilizing, which is fit for these species of insects, and just as efficient as the one by which the insect itself is developed.

Concerning the larger space which the queen has in her cell, the drones give us an important hint; for those which, from the lack of their proper and peculiar cells, are bred in cells for common workers, and are called hunched-backed or hunched brood, are considerably smaller than those which are bred in their own proper cells one-third larger than the cells of workers; for the body of the pupa being cramped in those cells, is prevented from attaining its full growth.

That the queen has a shorter trunk than the common bees, but just as long wings, and no spoons or cavities on their hind legs, does not weaken our conclusions. All these differences may be caused by the quantity or quality of the nourishment of the pupa. The above mentioned organs retain always their similarity to those of the common bees, and they are indeed unchangeable for the very reason that those differences are produced by accidental causes,—causes which must necessarily produce the same effects every time, since the Creator conceived them in his plan, when he created the bees, and we must likewise leave it to his wisdom, how he has given an audible voice to the queens, but not to the other bees.

Besides, as for the possibility that the sexual organs and ovaria of the common bees, may be—so to say—extinguished, there are similar instances with other insects. The abbot, Boissier de Sauvage, a great naturalist, reports of the silk worms, that he dissected them at the time when they eat most, and it is easiest to observe their bowels; that he found in every one an ovarium, and consequently only female and no male worms. But if there is a female ovarium in every silkworm without exception, it is clear that it has shrunk away or dried up in the male butterflies, that is, in those pupæ which, by some unknown circumstances are destined more for one sex than for the other. If we should find in dissected bee-pupæ usually only one and the same ovarium, or only one granulary fibre with little knots, we should be entitled to draw the same conclusions concerning the bees, which abbot Bossier has drawn concerning the male and female butterflies, and to claim that the ovarium dries up in the worker bees, *i. e.*, in those bees, which by some certain unknown circumstances, were marked or destined more for the one than for the other sake, which have been bred in narrower cells, and which, on account of their position and smaller quantity of nourishment, could not extend their parts nor develop certain organs in the likewise, as those in larger, royal cells are enabled to do.

EDITORIAL.

GREAT reforms are not brought to completion in a moment and after the interests of apiculture have been left for so many years to the tender mercy of our largest supply dealers, it is not strange

that, when a change comes and those who have more than self-interest for an incentive urge upon the masses of beekeepers the necessity of more thorough organization and systemization in order to protect their interests, there is a vast deal of opposition from those who have heretofore had it all their own way. The majority of beekeepers are not fools and many of the most prominent apiarists *know* that there is great need of reform and we are glad to see that many of them have manhood and backbone enough to say so and stick to it.

In the past the journals have had it in their power to guide the old ship just where they choose and it is not strange that they chafe at the new order of things, but all the silent contempt or open scorn and abuse that may be heaped upon the APICULTURIST for taking the position that it does, will not alter our decision or change our course. We have entered into this work fully understanding that it meant war and we are prepared to meet whatever may come.

All that we ask is that those in whose interest we are working may come out like men and stand by us; we need more helpers and feel thankful that so many have come to our support. If every beekeeper would speak his honest convictions, the course taken by this journal would be endorsed and supported more thoroughly and fully; but how many persons *must* wait until any reform is so popular that their own individual interests are in no danger ere they will stand by it. We are glad that all are not so.

We hope that our readers will take an interest in these matters and send us all the interesting items that may come to their notice. It is for you to help in making the APICULTURIST interesting and instructive. We can only do our part; you must do the rest.

We have decided not to give any bee notes this month as we are crowded for room, but will refer you to those of last month and to our Questions and Answers.

CORRESPONDENCE.

ED. OF AM. APICULTURIST:

OUR Sunday school were in need of new books for their library. Festivals of the ordinary kind had been held during the winter, and in order to appease the popular demand for something new I proposed a honey festival.

It came off early in February, and was a success. I had several sizes of Jones' cans, and arranged them upon the table so as to make a display. I also had comb honey lying around loose and in fancy paper boxes.

There was comparatively little honey eaten, but several purchased packages to take home with them. And although the evening was unpropitious and our church a small one, enough was realized to place about thirty volumes in the library.

The exercises of the evening were singing, readings, recitations, an address by the pastor, and an address upon bees and honey by the writer. As the latter may be interesting to you, I send it herewith.

In looking over the subject of bee-culture for a few remarks in relation thereto, I must necessarily take up but a few of the most popular points and be brief with those.

Instead, therefore, of trying to give you instruction of a scientific nature, I shall endeavor to interrest you by answering a few questions; questions that are so often asked as to become stereotyped upon the memory. There seems to be an impression abroad that bee culture requires but little care and little labor. This impression is evidently derived from the old method of beekeeping which was no method at all, but was merely allowing the bees to take care of themselves. Modern bee culture is so different in its management, that during the busy season the labor is constant; the bent posture we have to assume and the care required in lifting our fragile combs and resisting their combative occupants render the work very tiresome. Strict attention to business is the beekeeper's watchword. He cannot attend every circus that comes along; he has one of his own to look after.

The Fourth of July can be no holiday for him, and even if he should desire to go away he can hire no one to take his place, and when I see a successful beekeeper I know every hour has been used to advantage. A recent writer in one of our bee journals says, that a man who is going to run one hundred colonies of bees through the honey season must be a regular salamander.

Then, after all of this labor, and frequent stings, how consoling it is to have some one step up to you and say, "Well, I suppose you are fussing with your bees nowadays."

Now, a man feels very dignified I suppose, who sits down and milks cows by the hour; no one asks him if he is fussing with his cows. It is not applied to the dainty man who wields the yard stick behind the counter. Why, my friends, some people in the poultry business think it very laborious to go out and set a few old hens. If there is any person here who is the least sceptical upon labor in the apiary, I would invite that one into my bee yard next summer, and he will be convinced in less than ten minutes.

Another question that is asked nearly every day during the year is "Do you ever get stung?" Yes, I do get stung; and though I have heard of persons that bees would not sting, I never saw such a curiosity, and a person who aspires to become an apiculturist should learn to take fifty stings an hour or even in a less time if necessary. It is not so much the operation of stinging as the after effect upon the person. With some people the more they are stung the worse the effect; while others are so fortunate that the more they are stung the less injurious the result.

Much also depends upon the race of bees we handle. We have now in this country, besides our native bees, bees from Italy, from the island of Cyprus, from Syria and from Palestine, or Holyland bees as we term them.

The Cyprians are conceded to be the most reckless with their venom and are very hard to manage. Frequently, I have persons come into my apiary, boasting of their immunity from bee stings. I introduce them as speedily as possible to my Cyprian bees. One person thus introduced exclaimed, as he emerged from a clump of grape vines, "I believe those Cyprians will sting faster, deeper, cover more surface and with more of the gall of bitterness than all other bees put together."

At the close of the honey season if the beekeeper can show a beautiful crop of honey, the question most frequently asked is, "Where does all the honey come from?"

I find a great mistake exists in the minds of the majority of people as to the length of time bees are employed in gathering honey. Not a few think that bees get honey during the entire year, and I know nearly every person in this audience will be surprised when I state, that the eight tons of honey obtained in my apiary during the past season was all gathered inside of four weeks.

Our great sources of honey are clover and basswood, and I think I can by an illustration, familiar to all of you, show how bees can accomplish such great results in so short a time, and prove to you that we have not had much of a honey shower after all.

There is not a farmer nor an owner scarcely of a village lot, here to-night but will be seen, in a few weeks from now, armed with an auger, a spile and a tin pail; he walks out to his favorite maple tree, and taps it, and the result is the flow of liquid one drop at a time. It is a very simple thing; but suppose a man who never saw the operation should come along. He would probably exclaim, Why, my dear sir, do you expect to get that pail full this spring, with those insignificant drops? You must be a fool, sir!" But the drops come, one after the other, and before sundown the pail is brimming full. The owner points triumphantly to the result, while the stranger exclaims where in time, did it all come from? Now, my friends, you who are sceptical about honey production, come with me and let us sit down by the side of this bee hive. Here, within these walls, are 50,000 workers. The fields are white with clover blossoms; a mere speck of liquid oozes from each clover tube, it scents the air. The honey bees, true to instinct, go forth in scores to sip up the treasured sweets, and they return with rapid and unerring aim to the hive, so fast that you cannot count them; every bee has a drop of honey, and at the moment of your observation, honey is running into that hive so rapidly as six spouts would run sap into your pan.

But the honey flow differs from the flow of sap. While sap flows steadily all day, the honey flow is perhaps confined to a few hours in the morning or toward evening.

We can also look at this honey flow from a mathematical point, and in this case find it not such a wonderful thing after all.

Here is the problem. If 160 swarms of bees produce 16,000 lbs. of honey in 32 days, how much will each swarm have to produce per day? The figures tell us that only 3¼ lbs. per day from each is necessary; the united efforts of numbers, though seemingly insignificant, produce what seems to be a wonder. But whatever the results may be, the insect itself is one of the wonders of God's creation. With an architecture fragile, yet so perfect in construction; with a mode of defence at once effective, and as prompt in action as an army of well drilled soldiers; and a mode of government so perfect as to put to shame the boasted government of man; like the philosophers in all ages of the world, let us treasure up inspiring thoughts from the inhabitants of this wonder-land, the bee-hive.

JOHN H. MARTIN,

Hartford, N. Y., Mar. 12, 1884.

ED. AM. APICULTURIST:

THE February and March number of your excellent work was

duly received and contents perused with interest, especially the report of the N. E. B. A., which I consider of the true type and puts the "National" into the shade. The subject of "Foul Brood" is one of marked interest, not only to you of the north, but of the entire continent. The "Bill for the Eradication of the disease" is timely and good, but like that of Michigan, to me it does not go far enough in justice or equity. I would suggest to attain that end, that each county or state create by some means an Indemnity Fund, the colonies and hives condemned, appraised, then destroyed and the party indemnified at once, for surely, if the county or state is a *great* gainer thereby, it can afford to reinstate the individual through whose loss the benefit is derived! not with *cash* as that would bring temptations, but with healthy bees, that he still might derive pleasure and profit therefrom. Something similar has been recognized for centuries: as in shipping, if a ship is in danger of being lost, and by jettisoning, half the cargo is thrown overboard, the other half saved thereby, then the parties benefited must contribute, *ratably*, to the loss which is known as "general average." The loss must be first, voluntary, second, necessary, third, successful to what end. *The benefit* of his neighbors! county or state? Then in all justice "if any man's property be destroyed for the benefit of his neighbors, they who are benefited by his loss ought to help make up his loss," and their contributions should be in proportion to the value of the property saved to them by such sacrifice. Now, by such a law among apiarists, every one will court investigation, and strive to his utmost to have it stamped out and at once too, as he would have then no inducement to conceal it in the hope of curing it with experimentation, get found out, lose his bees and then be fined $50 for first offence!

A. J. Goodwill, M. D.,
"*Live Oak Apiary*,"
New Smyrna, Fla., Mar. 21, 1884.

Ed. of Am. Apiculturist:

Dear Sir,

In your report of the Mich. State Beekeepers Association held at Flint, in December last, I am reported as saying a teaspoonful of salt to a pail of water for bees.

Now what I said or meant to say was a table spoon just a little more than even full to a pail of water. If the proportions are just what the bees best like they will take about one qt. of water to each dozen hives per day. I use inverted Mason jars on grooved boards for feeders. The troughs should be boiled to remove the woody taste. They must be thoroughly cleansed once a day to keep all nice, sweet and healthy for the bees. Early in spring place your feeders in some sheltered place where the sun can shine on the bees but when the weather gets hot a wide board should be placed twenty inches or so above the feed trough to keep off the noonday sun.

If my bees have plenty of good stores I want no other stimulant in spring. Average queens will, under the above conditions, give the bees all the eggs they can attend to. At least mine do.

S. T. Pettit.

Belmont, Ont., Can., March 17, 1884.

BOOK NOTICES AND REVIEWS.

We have just received from the author, Mr. John Phin of N. Y. city, editor of the Young Scientist,

a copy of his work entitled, "How to use the Microscope," which is profusely illustrated, and is replete with valuable information for those who wish to become familiar with the microscope. Price $1.00. Address the author.

We have received from the publishers, Messrs. C. A. Schwetschke und Sohn, several copies of the new German bee journal "Die Deutsche illustrierte Bienenzeitung," edited by C. J. H. Gravenhorst. This journal certainly does credit both to the editor and publisher. The mechanical make-up is first-class; it is finely illustrated and gives evidence of the genuine ability of its editor.

NOTES AND QUERIES.

For some reason a number of our last issue have been lost in the mails but if parties who do not receive their Journals in due time, will notify us we will attend to the matter promptly.

From the edition of Messrs. Geo. P. Rowell & Co's AMERICAN NEWSPAPER DIRECTORY, now in press, it appears that the newspapers and periodicals of all kinds at present issued in the United States and Canada reach a grand total of 13,402. This is a net gain of precisely 1,600 during the last twelve months, and exhibits an increase of 5,618 over the total number published just ten years since.

All supply dealers, who paid us for card in dealers' list for last year, can, by sending us fifty cents, have their card continued the remainder of this year. Please remit promptly so as to save trouble in arranging list.

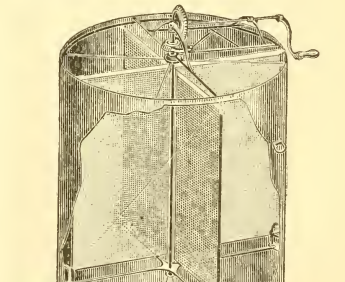
One of our subscribers, Mr. T. R. Sawyer of Muscatine, Iowa, has wintered one hundred colonies of bees, on the Langstroth frame and on the summer stands, without the loss of a single colony, and they are in fine condition. This is a valuable report, as the past winter has been a severe one. It is our opinion, supported by practical experience, that those colonies that have been wintered on the summer stands are in a much better condition to build up rapidly than they would be had they been wintered in the cellar.

We have just received from Stanley Bros. the following description of their new honey extractor to which we referred in a recent number.

STANLEY'S

AUTOMATIC HONEY EXTRACTOR.

The accompanying cut shows a honey extractor that not only extracts from four combs at once, but also reverses or changes sides with the combs after one side has been extracted thus presenting the other side simply by reversing the motion of the crank.



The comb baskets or pockets are

made of wire-cloth; large enough to contain the size of combs used and with sufficient space inside so that they may be easily placed without injury from the wirecloth.

The comb baskets are made to slip on the hook at top, and at bottom they have a double crotch to fit the arch at lower corner. As the extractor stands at rest the comb baskets are all pointing toward the centre as they hang on hooks at the top, and the double crotch at bottom rests squarely against the arch at bottom of reel. As the reel begins to turn, the four comb baskets containing the combs are at the same time thrown off the vertical centre and all pass round in one direction to the four sides of reel. As soon as the motion stops and the centrifugal force is gone the comb baskets drop back to their former position pointing toward the centre. By reversing the motion the comb baskets are carried around in the opposite direction and the honey is thrown from the other side of comb. Now the machine is again stopped by applying the brake at top of vertical shaft, the comb baskets again swing back pointing toward the centre and the combs are removed.

If it is desirable to extract from broken combs or partly filled sections, a comb basket made to open on one side to receive the combs can be used in place of the regular comb baskets.—G. W. Stanley & Bro., *Wyoming, N. Y.*

Mrs. J. W. Tefft kindly sends us the following receipt which has been thoroughly tested and has proven very valuable.

COUGH SYRUP.

Put a handful of hops in one quart of boiling water, boil the mixture down to one pint, and add one-half cup of extracted honey; then simmer it for a while, when it is ready for use. Dose: one teaspoonful, four or five times daily.

Will our lady readers take an interest and kindly send us not only all the valuable receipts for the use of honey as a medicine or for other purposes, but also any interesting notes regarding apiculture, and we will devote a portion of the Apiculturist to such notes.

A physician of this place kindly gave us the following remedy for counteracting the poison in severe cases of stinging by bees. If a physician is at hand it is better to ask his advice regarding its use, but if not one must be governed by the severity of the case.

REMEDY.

Take one teaspoonful of aromatic spirits of ammonia in one wine glass or one-fourth of a tumblerful of water at intervals of from fifteen minutes at first, to thirty and more minutes, being governed by the severity of the case and discontinuing it when the system seems relieved of the poison.

The wounded parts should be bathed with the ammonia at the same time.

Mr. G. H. Knickerbocker of Pine Plains, N. Y., has kindly sent us one of his circulars, from which we quote the following:

"The American Apiculturist should be in the hands of every beekeeper in the land. It has no personal interest to put before the public, and is fully awake to the beekeeper's best interests. I make the following offer (entirely unknown to the editor) in order that I may do my share towards giving it what it justly deserves, the largest subscription list of any bee-journal extant."

We refrain from quoting club offers, as he will send a circular to

all who will call for one, and because we do not care to have our *motives misrepresented*, but in justice to Mr. Knickerbocker we wish to thank him publicly on behalf of the Apiculturist, and the interests of the beekeeper for the noble and manly position which he takes.

There may be, and are, those who, when their deceitful and unfair methods of conducting business are threatened, will gnash their teeth and howl vengeance; but God will bless those who like men do their duty, and not wait until any reform has become *popular* before daring to tell their honest convictions regarding it.

CONVENTION NOTES.

NEW JERSEY AND EASTERN CONVENTION.

We take the following items from the report of the secretary, Mr. Aspinwall, as given in the "Magazine."

The list of officers chosen for the next year is as follows:

President, Mr. J. H. McCook of Caldwell, N. J.; *Vice President*, Mr. J. Hutchinson of Trenton, N. J.; *Secretary*, Mr. John Aspinwall of Barrytown, N. Y.; *Treasurer*, Prof. Kroeh, Stevens Institute, Hoboken, N. J.

It was thought proper that the association should be represented in the state boards and the following delegates were appointed: Mr. J. H. M. Cook, to New Jersey: Mr. E. B. Crane of New Canaan, to Connecticut, Mr. John Aspinwall of Barrytown, to New York, and Mr. F. Hahman, jr., of Philadelphia, to Pennsylvania.

The following resolution, which was adopted, shows that the time will come when individual interests must give way to the good of the majority, and our associations *must* decide upon some standard for our hives and frames.

Resolved, that the association urge the adoption of the standard sizes of frames now in use, and advise beginners to use one of these standard frames in preference to odd sizes.

Query, which are the standard and what the odd sizes, and what has made them so? [Ed.]

During the discussion the following points were brought out.

1. Mr. Hutchinson finds that bees wintered in the cellar sometimes had dysentery while those wintered outside never had.

2. It is not well to winter bees in a shed exposed to the direct rays of the sun, as the heat tends to make the bees uneasy.

3. Young bees are essential to prevent spring dwindling.

4. To stop robbing when once commenced remove the hive to, say, one hundred yards from the apiary and shut the bees in for a day or so, being sure to move them at night, so that the robbers having all returned home should not have obtained the bearings of the new location and being careful to exclude all the light from the entrance of the hives without excluding the air, so as to prevent the bees worrying and clogging the entrance. This, it was claimed, would prevent any further trouble with the colony thus treated.

5. The idea was advanced by Mr. King that in uniting bees in the fall we might save queens by dividing a colony into three parts using wire division boards and keeping a queen in each section.

6. There was considerable effort made to prove that Rev. L. L. Langstroth was not the originator of the movable frame, and Mr. Fisher, Sr., a gentleman from Germany, in answer to questions put to him, stated that "In Germany the hives used are about the same size as those used here; that Dzierzon used bars only, not frames, but Baron Berlepsch used them between the years 1845 and 1850.

[As an article upon this subject, from the pen of J. E. Pond, jr., appears in this number, we will not comment upon this matter at present.]

7. During the discussions it was suggested that the "Magazine" be made the official organ of the association, but Messrs. King, Aspinwall, Porter and Kroeh decided that it was not only an unwise but a dangerous move for both the journals and the beekeepers, and might lead to ring rule; hence the matter was laid on the table.

[We sincerely hope that the editors of the "Magazine" will *always* exhibit the same unselfish interest that seemed to control their motives in acting upon

this matter. It is not in our province to say that they were not honest in it. We leave that to their own consciences. Time will tell.

8. The planting or sowing of Alsyke clover, sweet clover, borage, and Centauria, as honey producers, was strongly advised.

9. It was decided that building up good home markets and grading our honey carefully would increase the demand and do away with the cry of "low rates."

10. Messrs. A. J. King and J. Hutchinson, committee on questions, reported as follows:

1. Do young bees winter as well as old ones? Very much better.

2. Is it certain that bees know each other by the scent? Yes, their scent or some other cause.

3. Is it advantageous to glass honey? Yes.

4. Will a colony, which has just swarmed, as readily accept a queen before cutting out cells as after? No.

5. Should the publishers of our bee journals deal in supplies? Yes.[1]

6. Is there any egg-keeping compound that will keep queens' eggs over winter, to hatch in spring? Yes, queens' ovaries.

7. Will the discussion of the subject of the adulteration of our honey inure to the benefit of honey producers? Yes, if discussed properly.

8. Are worms found in combs where no pollen is present? Committee disagreed.

9. Was Langstroth the originator of the movable frame hive? No.

10. Are the Italians, all things considered, the best bees yet produced or discovered? Yes, as far as we know at this date.

11. If there is a death in a beekeeper's family do the bees notice the fact, as has been stated? No, they do not. It is the varnish on the coffin attracts the bees and not sympathy for the family.

12. How small a colony can a beginner commence with? Best to commence with a full colony.

13. Is not the tariff detrimental to the production and sale of honey? No, but beneficial, as honey produced in Cuba would destroy the sale of honey here, were it not for the fact of a duty on it of thirty cents per gallon.

After this the convention adjourned to meet in the fall in New York City subject to the arrangements of the executive committee.

[1] Please notice who answers this question. ED.]

QUESTIONS AND ANSWERS.

QUESTIONS BY THE EDITOR.

1. What is your method of building up your colonies and preparing them for the honey harvest, commencing at the time when they are first taken from the cellars, or, if on summer stands, when you first examine them?

2. Will colonies build up more rapidly with the long shallow Langstroth frame, or with one about $10\frac{1}{2} \times 16$? and why?

3. How may we be able to judge just when the colony is in a proper condition to commence work in the sections, and how shall we proceed when they are in that condition?

4. Is it well with colonies that are to be run for section honey, to remove the old queens, replacing them with young ones in order to control the swarming fever? If so, at what time is it best to do this?

5. When is it best to remove the chaff packing from around the hives, and what is the effect of keeping the chaff packing around them in the summer?

QUESTIONS BY WM. STEPHAN.

6. Which is the best way to have the frames in the hive, *i. e.*, parallel to the fly hole or in a right-angle direction to the same, and what is the reason for the one or the other way?

7. What is the reason why wire netting cannot be or is not used for separators? We used it last year in six hives and found it a success; it is cheaper than perforated metal and does not warp like the wooden ones.

8. How can it be explained why the extracted honey gathered the same time as the comb honey, being out of the same hive and kept in the same room, in waxed kegs 200 lb. cap, has lost about

50 per cent. of its aroma or flavor? The honey in the barrel was candied, white and hard like lard; and still when tested with the comb honey (1lb. section) showed the above fact.

QUESTIONS BY J. P. MCELRATH.

9. What is the best method for fastening wired foundation into the brood frames and thin foundation into the sections?

10. Will Mr. Hoffman give the size of his frame (outside measure) as he uses it; also the dimensions of top, bottom and end bars?

ANSWERS BY L. C. ROOT.

1. Take away all combs that the bees cannot cover; contract space with a close fitting division-board. Leave such combs as contain most pollen, also endeavor to leave the best combs for breeding. Be *sure* they do not lack a generous supply of honey at all times. Contract the entrance and prevent all upward and lower ventilation possible. A piece of enamelled cloth of proper size to fit snugly over the frames will be found extremely desirable. Add combs as the bees increase to cover them. Keep each stock supplied with a good queen. As early as it can be done practically, keep a good number of young prolific queens on hand to supply the places of such as fail.

Use all possible means to prevent bees from flying when too cold, by shading the front of the hive, leaving them entirely undisturbed, etc., as at such times many bees are wasted.

Keep the rear of the hive slightly elevated, so that it will be lowest at the entrance. Have a good, well-adjusted alighting-board, reaching from the ground to the entrance.

Success in beekeeping depends upon close attention to all the minor details. A knowledge of these can only be gained by diligent study and extended practical experience. I give these directions for those in the colder latitudes like our own, and not as a whole for warm climates.

2. The deeper and shorter frames are much preferable. I predict that in the future a deeper frame is to take the preference. I believe if such men as Julius Hoffman, C. C. Van Deusen, P. H. Elwood, Hetherington Bros., Ira Barber and a host of others were to give us their opinion they would favor a deeper rather than a shallower frame, than the ten inch one you mention. The reason for this is that the combs being shorter and deeper, the brood will be kept more compact, and the warmth generated by the bees more completely retained.

3. In order to judge correctly of the time when bees should be allowed to commence work in boxes, it is necessary to study the sources from which we are to expect our surplus in our different locations. Some must expect their main yield from clover in May and June, while others must secure it from basswood in July and August, and others in different latitudes may expect it earlier or later from other classes of blossoms.

The question is not worded in the best way, as it assumes that when the stock is in a proper condition to commence work in sections that they should be allowed to do so. Some stocks would be in proper condition very early, but the yield of honey would be such that they could store but little in sections. Such stocks should be used to help the weaker ones, so that at a later date when the general flow of honey came, all might be ready to commence in the boxes.

A stock to be boxed should contain a good swarm of bees, and from six to eight combs (according to size of frame) well filled with brood and honey; then, if they are boxed at a time when a good flow of honey is afforded, the bees will commence storing it in their absence which is very essential.

4. Stocks managed in this way often store honey in a most desirable way. Some seasons it will entirely destroy the desire to swarm; I usually supply the young queen as soon as the old one comes to a condition where she begins to deposit eggs sparingly.

5. I have usually removed the packing as soon as the weather is warm. I have never tested hives packed during the summer, as we have used all space for boxing. It might easily be advantageous.

6. I prefer the combs to run from front to rear of hive, as the bees can enter more directly to the different spaces between the combs.

7. I prefer wood separators from the fact that they stay in their proper place best and are more even and smooth. The bees are less liable to build comb fast to them, and my experience is that the honey presents a better appearance than when built with any kind of perforated separators. Besides, wood is cheapest.

8. The question is of so much importance and of such a nature that it would require a long article to answer it. The question of properly curing and caring for extracted honey so that it shall retain its flavor and consistency equally as well as that which is preserved in the combs is to receive much attention in the near future.

9. I would prefer having the wires pass through the top-bar, or else be fastened to the underside with a small blind staple over each wire. I think the machines which are made to fasten the foundations in place by pressure are to prove very desirable.

Wired foundation could be pressed in place and then a staple driven over each wire, making them doubly secure.

10. I believe that Mr. Hoffman's marked success comes largely from the shape and size of his frame.

ANSWERS BY J. E. POND, JR.

1. I give flour or rye meal candy as early as I dare, for stimulative purposes; and, by spreading brood judiciously, endeavor to keep the queen up to her full laying power. I remove all absorbents from top of frames, and cover the colony in closely, so as to allow no upward ventilation, in order to retain both heat and moisture; contract the entrance to suit the colony and let them work. As soon as natural pollen appears, I stop feeding the pollen substitute and give dilute sugar syrup instead, and continue it till fruit bloom, and during the interim when no honey is being gathered. To sum up, my method is to force brood-rearing, by all the means now known, just as fast as the condition of the colony will admit.

2. I do not think it will make much difference; but as I have never used a $10\frac{1}{2} \times 16$ frame, I cannot say positively.

3. My plan is to force rearing of brood in the extreme tops of frames. When by extracting or reversing frames I have got the brood up close to the top-bar, or as nearly so as possible, I put on sections at the first appearance of honey-gathering, and as far as possible prevent swarming by removing a frame of brood occasionally.

4. I have never tested the matter, as I have not yet decided that the queen, as a matter of fact, has anything to do with the matter of swarming.

5. I remove chaff-packing on the approach of settled warm weather as a rule; but as a matter of fact I have found little, if any, difference between those left packed and those from which the chaff is removed.

6. I prefer to have frames run parallel with length of the hive, and at right angles with the fly hole. My reason is that the cluster is better protected in winter by so doing.

7. Wire netting can be used for separators; the objection is that it is so flexible that the face of the capped combs will not present that smooth, even and regular appearance, so desired and desirable.

8. The flavor or aroma of honey is retained by sealing it in its natural cells. Unquestionably as aroma is somewhat volatile, exposure to the air will cause its deterioration to a certain extent.

9. I have never used wire foundation. My way of fastening foundation into sections is by using the little machine that smashes the edge into the wood. I consider this the best way of fastening it into sections.

ANSWERS BY P. H. ELWOOD.

1. See that they are comfortable with enough to eat and let them alone.

2. Probably in the deeper frame mostly because they winter better.

3. When the hives are full of bees and brood, and honey coming in fast, then put on your boxes.

4. No.

5. As soon as warm weather comes. It is usually damp and the effect on a swarm of bees is about the same as on the beekeeper when he sits down in wet clothes.

6. When the frames are quite long I suppose it is better to have the entrance at the end so that the brood nest may be located there.

7. Costs more and will not keep its shape as well as wood. Besides is colder.

8. Either taken too green or throwing out larvæ into the honey or extracted when bees were gathering pollen rapidly thus getting many pollen pellets into the honey, either cause being sufficient to set up a slight fermentation, not perceptible to the taste perhaps except in the loss of aroma or fine flavor. On either supposition the flavor would be a little off even when fresh. A good deal of care required to come anywhere near the successful packing of the bees. Our honey market would be better if beekeepers were satisfied with a smaller quantity of better quality honey. The demand for comb honey is quite limited while the market for extracted honey can be indefinitely extended if a well ripened article is produced.

9. That described by Van Deusen in his circular.

ANSWERS BY PROF. A. J. COOK.

1. We always stimulate by daily feeding in spring as soon as bees gather pollen. We shall commence to-morrow (April 5). Bees gathered pollen to-day. I know this pays by actual and repeated tests.

2. I think they build up most rapidly in square frame like the Gallup or American. This was one great reason after trying both that I adopted the Gallup-frame.

3. They must be strong at dawn of harvest. Then add sections, not too many at first.

4. Not if she is a good one, otherwise yes for any honey.

5. If wintered in cellar, which I think best method, I want no chaff. Cover warm above till cool nights are past.

6. It makes no difference.

7. ?.

8. It doesn't do so here, if kept in a dry, warm room.

9. ———

ANSWERS BY G. W. DEMAREE.

1. In our climate I have found it only necessary to furnish the strongest colonies with plenty of stones for brood-rearing. The weaker ones are treated in the same way with the addition of division-boards to contract the brood nests.

2. I use the "L" frame; but I have had six hives with square brood departments as an experiment for three years past; one average, one very poor and one excellent season. The "L." frame has given the best satisfaction in every respect.

3. As soon as the bees begin to lengthen the cells close up to the top-bars and the spaces between the combs are well filled with bees, I give them room for surplus, one case at a time and practise the tiering-up system.

4. It has not worked satisfactorily with me as a general thing.

5. In our climate chaff-packing is not necessary at any time, and I have discarded its use.

6. I have tried both positions for frames, and in my opinion there is practically no difference. I prefer, however, to have the frames adjusted parallel to the entrance, as it prevents of "tipping" the hives forward, which is the most favorable position for straight combs and facilitates the cleaning of the hives by the bees. It also helps the covers to shed the rain.

7. It can be used; but I object to it on account of its flimsy character. When propolized to the sections it pulls out of shape in getting it loose, and when it gets daubed up with pro-

polis, etc., it is next to impossible to scrape it off.

8. I have never had such an experience. The bees evaporate my extracted honey as thoroughly as they do my section comb honey before I extract it, and I defy any body to detect any loss of flavor. I have samples of honey running back six or seven years, and the flavor is as delicate to-day as when taken from the hives. I have noticed, however, that honey is more highly flavored some years than others, and the same thing occurs frequently in the same season.

9. I have never used any "wired" foundation. When I use wires they are first fastened in the frames and afterwards passed into the foundation by an experiment of my own invention a description of which would take too much space for this place. We use the putty-knife method to fasten the thin foundation in the sections. It is not quite so fast as some other plans, but it has this to commend it; our "starters" and full sheets never tumble down.

Christiansburg, Ky.

ANSWERS BY E. E. HASTY.

1. At my locality the honey harvest is usually late, commencing about June 10; and no very strenuous efforts are needed to have a colony ready then, *unless the bees have wintered badly*. I winter on summer stands, two colonies in a hive. Of course the non-resident colony must be returned betimes to its own stand. At this time each colony is on four frames (or five), and the other three are hanging in the comb closet. One by one these frames of honey are put in, until the colony has seven frames. Breaking the cappings of the honey when the frames are put in will have some tendency to stimulate. My surplus has to be stored from runs of honey that are quite small (one to three pounds per day) and I think it quite essential to keep the comb-space in the lower story as small as will well do, lest all the honey be used or stored below. Early in the season I keep things snug with chaff-packed dummies. Later I fill the whole unused space below with *loafers* (gridiron-shaped things of lath which prevent comb-building, but give abundant room for the bees to remain when off duty, without being forced outside). The swarming fever is the grand plague with me—and the main obstacle to honey storing. I hope the prevention of clustering outside helps somewhat to restrain swarming; but cannot say how much, if any.

2. I suspect that the Langstroth frame would be a little better of the two. My regular apiary work is with the Langstroth and Gallup frames—the Gallup a trifle ahead for building up purposes.

3. The colony should be in good condition, and tolerably strong in numbers. Watch the daily gathering of a good colony on the scales; and when the honey comes in put on sections over all colonies that are sufficiently strong. I do not think I would wait until the narrow space between frame-ends and hive was being wedged up with honey. I have entirely abandoned side storing, and only put sections above.

4. I have not yet tried this "kink," and feel a little suspicious about it.

5. If chaff packing has got wet, either by outside or inside moisture, take it away before the rotting and souring advance very far. Otherwise leave it until it is in the way of manipulation. The better way is to have the packing mostly between double walls of the hive itself, and to leave it there always.

6. An important advantage of having the combs at right angles to the entrance (in case long and shallow frames are used) comes in wintering. Bees form their winter cluster next the entrance, and move slowly backward, consuming the honey as they go. This movement could not be so quietly made in frames run the other way.

7. Probably a suspicion that wire netting might prove bothersome, by ravelling or otherwise, and present loose ends of wire to perforate the honey, prevents it being more generally tried.

8. Perhaps slight chemical changes have served to dissipate the aroma of the extracted honey.

9. I do not use wired foundation. For filling sections I think the Parker machine satisfactory.

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A Journal deboted to Scientific and Practical Beekeeping.

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BEE-CULTURE IN THE SOUTH.

BY G. W. DEMAREE.

DR. BROWN of Georgia in an able article—the doctor's articles are always well written and interesting—published in the New England Apiarian, expresses his belief that the flow of nectar in the south is never so copious as it is in the colder northern regions; though he notices the fact that the honey harvest is far more extended in duration in the south. Of course he speaks particularly of the warmer portions of the great south. If there is any place on the earth where the flow of nectar is more profuse than it sometimes is in Kentucky, and other like climates and surroundings, I cannot imagine how the bees can manage to handle even a small portion of it. The black locust, in the locality of the writer, is a most profuse nectar-bearer. The only drawback with it is, that it comes so early in the season that it is likely to be partially lost by the intervention of rain and cool weather. Still, with these dangers at hand, I have experienced but one entire failure with it for seven or eight years past, and that one failure was caused by a late frost killing the bloom one night just before it was ready for the bees. To give some idea of the locust as a honey-producing tree with us, I relate the following circumstances. Two years ago, my apiary came through the winter in good health, but alarmingly short of stores; and, as many of the fruit buds were winter-killed, I had to feed nearly every colony in my apiary during the months of March and April, and to the ninth of May. Well, on Sunday before the second Monday in May, my bees made a little start on the locust, as a few trees began to unfold their flowers. I saw that feed was at an end, and on Monday morning left home to attend court for the week. I was absent from my apiary till the following Saturday morning, at which time I commenced to open such hives as I had been feeding to keep alive up to just one week previous. You

can imagine my surprise to find every hive in the apiary literally glistening with honey from top to bottom. Just five days had done it, and if I remember right one of the days' work was broken by rain fall. My apiary did about as well last year, though they had a little longer time to operate in. I have in my possession a statistical table of nearly all the modern beekeepers in our state, giving an outline of their success. There are perhaps not more than one hundred modern beekeepers in the state. Of course there are bees kept in some fashion nearly everywhere, but I speak of modern beekeepers, less than one modern beekeeper to the county in the state, if they were evenly distributed. From the information before me, I doubt if any state can show the uniformity of success in honey production that Kentucky does. The few modern honey producers in the state are scattered nearly all over the state and their success last year in the production of honey presents surprising uniformity.

Still, I have every reason to believe that the best locations in the state for the production of honey have never been tested. When this is done there will be less uniformity, but the aggregate will be raised to no inconsiderable extent.

The facts before me show that the white, or Dutch, clover as it was formerly called here, is the great surplus honey producer, while the locust comes next, poplar third, and linden, fourth. Of the fall honey plants, the large smart weed (Hydropiper), heartsease, or by whatever name it is best known, stands at the head, though in many locations, the asters and golden rods yield well. I insist that modern beekeepers have failed to realize the importance of utilizing the best locations. I can find locations not over fifteen miles from my own, that would give an increase of honey per colony, over what is possible to be obtained in my location, the aggregate of which would be sufficient to pay the expenses of running the apiary including hired labor. The only drawback would be that the surroundings of such locations would not be so pleasant to the apiarist who loses the best society. Society in all rough places seems to partake of the rough surroundings. But the world is much what we make of it after all.

Christiansburg, Ky.

SHALL WE MAKE BEEKEEPING AN EXCLUSIVE BUSINESS?

By L. C. Root.

Every beekeeper of experience will answer this question for himself, but there are those who contemplate entering into beekeeping who will hesitate.

I have followed beekeeping as an exclusive business for fifteen years and have had an opportunity to observe very closely its many phases.

In earlier days when the sources from which our honey came were more certain, when prices for honey ranged higher, and above all when comparatively few were engaged in the business, and there was a demand for even more honey than was produced, one was more fully warranted in making beekeeping an exclusive business.

I have watched the changes in our pursuit with more than an ordinary degree of interest as the results of the changes were to determine my own action in my plans for the future.

The results of my experience lead me to the conclusion that it is far more safe to unite beekeeping with some other business. There are many kinds of business which may be conducted in connection with beekeeping with pleasure and profit.

Among these are poultry raising, stock growing, small fruit gardening, etc.

If farming were conducted in a better way than it usually is, and a few colonies of bees kept in connection with it, the two pursuits would be found to harmonize.

As a rule, farmers attempt to work far too much land, and the consequence is a low grade of farming.

Their crops, both of grain and fruit are inferior, and if there is a beekeeper near them they are apt to try and make themselves believe that the bees are the cause of their poor crops.

If, instead of attempting to conduct a farm of two hundred acres, they would put the same amount of work on fifty acres and keep fifty colonies of bees, sowing alsyke clover, buckwheat, etc., their investment would be much less, and I think the results more satisfactory.

The present feeling with so many that the interests of the farmer and beekeepers are antagonistic is very much to be regretted, for the facts when investigated will prove decidedly the reverse.

From very close observation, I feel warranted in saying that the honey bee is as truly a necessity in the propagation of field and garden crops, as are the rain, sunshine and soil. These facts will surely be proven by the harmony which will be produced in the desirable practice of uniting the branches of business referred to, and conducting them in such a manner as to bring about the harmony which the God of nature has established.

Mohawk, N. Y., May, 1884.

WHEN SHOULD WE CHANGE QUEENS?

By J. E. Pond, jr.

Probably every beekeeper finds a necessity for changing more or less queens every year, and it is a question of grave importance, for by this change the crop of surplus honey may be greatly affected. Any change of queen means several days more or less when no

brood will be reared; and of course the proper time to make the change will be when the least loss will result thereby. My opinion is that the time to make such changes is just at the close of the summer honey season; not before the bees cease entirely to gather honey, but just when the crop begins to diminish perceptibly. As this opinion is to a certain extent a matter of theory, I will give my reasons for forming this opinion, and it can then be accepted or rejected as the reader may choose. In the first place it is well understood that queens will be more readily accepted when they are busily engaged in gathering honey, than at any other time; consequently that time is the best in which to make changes. Again, the crop depends upon the number of foragers contained in the hive during its period of secretion. Now it is presumed that a large force of foragers have been reared to work during the season, and at its close we shall have no use for them, till the fall crop is ready to be gathered. If then we make such changes of queens as seem desirable just at the close of the summer season, our new queens are not only accepted readily, but they will begin laying freely in ample season to allow of a large force of foragers when we need them in the fall, and besides we get rid of quite a large number of bees that would otherwise be a detriment by consuming a large amount of stores when there was nothing for them to do in the way of labor. By adopting this plan, we simply follow the rule of the successful farmer; he, if economical, will hire a force of men to harvest his early crops and dispense with their services when this is done, employing them again when needed for fall work. Of course in the above matter I am referring to changes that one can take his own time in making. When, however, a queen suddenly dies or becomes incapacitated for her work, then a new queen should at once be introduced or exchanged for the one played out, no matter what the season and without regard to the honey crop. By this plan I have been able to obtain large crops of honey and also have my colonies strong for winter, and I believe the plan the best that can possibly be adopted.

I may incidentally say there is another reason for making changes at the time I have indicated, viz., by delaying thus long we are more apt to procure A No. 1 queens, whether we rear them ourselves or procure them of breeders. I need not give any reasons for this opinion, for every beekeeper of experience knows that such is the case, and that the best queens we can procure are those reared during the months of June and July. Not that good queens are not reared in other months, but that those months are the time of natural swarming, and *per se* better queens can ordinarily be reared then than at any other period of the year. In introducing queens at this period, I simply remove the old queen about the middle of

the day, and at dusk allow the new queen to run in at the entrance. I find in ninety-nine cases out of a hundred they are accepted, and when I open the hive to look after them, which I do not do for three or four days, I find them busily engaged in filling cells with eggs. In future after my experience during the last two seasons, I shall introduce queens by exchange in no other way.

Foxboro, Mass., Feb. 29, 1884.

MAY BEES.

By W. M. Egan.

HOW TO MANAGE THEM.

"Maybe" I can tell you something about what to do and how to do it. The sequel will show, so look carefully for it.

The objects in view are always of first importance, and it would be well for each to decide at the outset whether he wishes to raise queens, bees, beeswax, combs, comb honey, or extracted honey, for the management necessarily differs, accordingly.

Putting extracted honey at ten cents per lb., we will try to give the approximate cost of the others. Twenty pounds of honey, if well managed, would secure one pound of beeswax, but we could not get $2.00 for it. Ten pounds of honey will raise a queen, counting all losses in the general average through the season: a good way to sell honey if you have the demand. Ten pounds of honey will also raise a pound of bees; perhaps it can be done with less, especially with large colonies. The beauty is, though, that these bees will gather nearly four times as much honey as it takes to produce them. Combs could be built out on foundation, at very cheap rates, and might be worked up to a paying business, because there are many who do not look after their bees sufficiently to have the bees build combs straight and perfect, hence are put at considerable extra trouble in handling their bees. Every one, however, who makes beekeeping a business, should use particular pains in having nice straight combs built, and plenty of them, for they are always useful, whether we raise queens, bees or honey.

The prime object in keeping bees is evidently to produce *honey:* all others are but auxiliary. Beeswax does not pay; the others are but supplies to the honey producer. With this object in view then, let us set about our task of accomplishing it. As we cannot very well gather the honey distilled by the beautiful flowers of God's creation, we need bees to labor for us, and then, for security and convenience we need a home or hive to which the bees may bring their stores. The bees would supply the rest, but we can help matters considerably by intelligent forethought.

It now creeps across my dull intellect, that "maybe" I had better say,

HOW TO GET AND PREPARE FOR THEM.

I do not know of better bees to buy than "May bees," whether Holy Land, Italians, Cyprians, or black bees, for, if they are in poor hives, now is the time to transfer them into respectable ones; if they have swarmed, you get the advantage of an early swarm; if they have not, you get the advantage of a double swarm, unless they are weak; if they are weak, —well, *beware* of *weak swarms*, unless you can get them *very* cheap, and are willing to go to work and build them up to strong ones. A good way is to send to a near dealer, and buy a pound of bees, and a queen already introduced, putting them into a hive on combs as soon as received, or (if a professional) buy a swarm, and five or six queens, dividing the bees equally, and giving each lot a queen. Anyway, get the bees. "There's millions in it," and "may be" a few bee stings, but lots of good sweet honey. I never knew any honey that wasn't sweet; even that from foul brood colonies is sweet, though I don't relish it so well. Perhaps I am afraid of diphtheria.

Well, to come to the task, we want a good hive to be handy for us, as well as the bees. It would not be so handy to get a "new fangled" hive that nobody else used, for many reasons. So get a popular one, Langstroth, Simplicity, or some one that is popular in your locality; and then, if you are ingenious, you might modify it to your notions, provided you do not change the size and shape of the frames. If it is not convenient to contain pound sections, chaff for wintering, etc., make it so.

Then you want some combs. Bees won't put honey in tumblers and jars; they are not used to it, and use is second nature. It takes beeswax to make comb, and beeswax costs *money*,—I mean *honey;* more *honey* than *money*. It don't pay to raise beeswax, if you can help it. The better way is to buy comb foundation, and the bees will make you a nice comb every morning before breakfast, if you put it in the centre of a strong colony the night before. Buy only that with thin bases and strong side walls, or else you lose beeswax or make work for your bees, which they will sometimes not do.

HOW TO RAISE BEES FOR HONEY GATHERING.

Now we have good clear "sailing" right into the "honey harbor," if we mind the "helm." There are a good many "snags," however, that we must "steer" clear of, or we may get "wrecked," yet keep a good lookout for weak colonies, moth, foul brood, etc. Rickets you can't help, and dysentery is passed. Bees and combs are what you want now, especially bees, and plenty of them, comb full, hives full, and two or three stories on top, full. How can we get them? That is what I was about to remark. If enough honey is coming in, look thankful; if not, look thankful, but *feed* the bees. Keep the division board close up to all the combs the bees can cover, and allow them no more

than they can cover. As fast as they become strong enough to cover more, put one in the centre. If you have not got the comb, use foundation. Never allow the bees to hang out, or even think of doing so. Add combs at the right time and only then. Do not let them get the start of you. Look at them often, and supply their every need. Do not let them get queenless, full of moth, or deficient of comb, pollen or honey. Give them your attention, and you will soon have your hives full of bees, and afterwards full of honey, and then your pockets full of money.

Editor of "Deseret Home,"
Salt Lake City, Utah.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p.* 108, *Vol. II.*)

THE STING OF THE BEE.

Concerning the nature of the body of the queen, it is especially noticeable that she, like the other bees, is furnished with a sting which is somewhat longer than that of the workers.

The sting of the bees is generally on the most extreme part of the abdomen, and when they are quiet, it is concealed from view. When one presses this extreme portion of the abdomen, there appear two white bodies which together form a kind of opening in which the sting is found if it is in the body. It is like a little dart which, although very delicate, yet from one end to the other is hollow like a tube.

One can confound the sting with the horny and very pointed sheath, as the sting projects through the most extreme part of this sheath and, together with the poisonous moisture, is thrust out at the same time with force. Indeed, the sting is double: there are two of them which come forth at the same or at different times at the pleasure of the bee. The most extreme one is cut like a saw and has fifteen barbs or teeth which are so crooked that they point towards the root of the sting, so that when it penetrates the flesh, it cannot be removed from the wound without rending it. For this reason, the bee must withdraw it by main force. If she does this too quickly, the sting is broken, and remains in the wound, in which it separates from the body of the bee, at the same time tearing the poison-bag, carrying with it a part of the intestines. This separation of the sting is absolute death to the bee, and mortification must forthwith follow.

But if a bee stings the other bees, which can only take place between the rings on the abdomen, the sting does not remain fast, except in rare instances when it penetrates the horny segment, but the sting is always fatal to the attacked bee.

But notwithstanding the queen, like the common bees, is furnished with a sting, it is seldom used by

her to injure. You can hold her without fear in the hand as long as you will, and even though she is pressed often, yet she does not sting. She must be made very irritable and long provoked, until she is resolute, before she will sting. So even here we see displayed the wisdom of the great Creator, who has so ordered all things in nature that he gives to these little creatures the power to withhold the sting. For, as previously stated, every worker bee must die if it has stung and the sting remains fast, thereby injuring the intestines; so in the same manner must the queen lose her life, which is so essential to the welfare of the colony, and hence it is a matter of great importance.

If the queen should use her sting so readily, it is well known that the colony, unable to get along without the mother-bee, would dwindle away and perish.

THE QUEEN AND HER SUBJECTS.

The relation in which the queen-bee stands to her subjects is extraordinary; this is due to the inborn allegiance, high esteem, veneration and love which the bees have for their queen. Their loyalty to her is so great, that they will not only sacrifice their lives for her protection and maintenance without hesitation; but, if perchance she be removed, lost or killed, and they have no brood from which to rear a new queen,[1] they mourn to such a degree that they neither work, fly nor eat, and die of hunger, even though the hive is filled with honey; or they will immediately abandon the old home and unite with another colony, or withdraw one after another and pay allegiance to another queen, or become scattered, sink beneath the burden of their grief and die.

If it happens that the honey in the hive fails and the colony must go to ruin, yet they keep the queen supplied with food as long as there is any to be had. The queen loves her subjects with equal devotion and if they are wholly taken away from her, she will mourn even to death.

Rodheim, July 25, 1783.

[1] A single common larva can produce the same effect as the presence of the queen. If they are only sure that they can raise a queen, they become as active and work as diligently as though the queen had already assumed her duties.

"*WANTED: A HONEY EXTRACTOR.*"

By G. W. Stanley.

As friend Heddon has given us his views on the above subject in the Beekeepers' Magazine for May, we would like to add a few remarks and bring in some points he has left out and possibly, in a friendly way, bring out some points of difference.

First: we want an extractor that will reverse four combs automatically.

Second: we want a good large reservoir under the frames that will hold from 100 to 200 lbs. of honey and with a faucet to let the honey out quickly.

Third: we want a good strong upright gearing with a strong crank at side of can and a brake to be operated by the left hand and to act on a smooth pulley on centre shaft and powerful enough so that we can stop the motion from full speed to a dead standstill at one revolution of the crank.

Fourth: we want the can made of heavy tin or galvanized iron (we prefer tin) and all the inside work strong enough so that we can carry forty lbs. of honey in combs without danger of anything giving out and the can should be from twenty-six to thirty-six inches in diameter so that it will need no fastening down to hold it still.

In short, we want a machine that will go through the process of receiving four heavy combs, partly extracting one side, then reversing and extracting the other side and again reversing and finishing the side first extracted from; then coming to a standstill when the combs are removed. We are sorry to say that American beekeepers want to do all of this work in just sixty seconds; but such is the case, and they want this machine all for $20 or less. Can they get it? Yes.

Friend Heddon says "we think that automatically reversing the combs in a practical manner is perhaps impossible, but consider that point of far less importance than the one of automatically extracting the honey by momentum by way of the slip gearing."

Now, if friend Heddon will step into our shop some morning, one of the girls will convince him that "automatically reversing the comb in a practical manner" *is not* "impossible," but that the process is very simple.

We can see no great advantage in the matter of a slip gear that friend Heddon describes by which he starts the motion and then throws the machine out of gear and leaves it to extract the honey while he uncaps more combs.

First, because if the machine is made as it should be with a large reel giving a strong direct centrifugal force to the combs he will not have time to pick up his honey knife and comb before the honey will be out of the combs in the extractor, if the honey be new; and if it be old and thick the motion will run down before the honey is all out, so that he must lay down knife and comb and again throw the machine in gear and start up and get out the honey from the bottom of the cells as this honey sticks much firmer to the comb than does that near the outside of the cell. Would it not be better for him to have three or four of his students busy all the time uncapping, and he spend all his time putting in, extracting and reversing combs, than for one man to do all the work of uncapping and depend on perpetual motion retarded by friction and centrifugal strain, to do the extracting?

Again, if any of the combs to be extracted contain any young brood with the large reel that his machine will take, and at the high rate of speed that he must give to get the motion after he has thrown off the

gear, all the uncapped brood will be thrown from the combs.

Do we not want a machine as first described, and one that works so perfectly that we can carry the combs to the sides of the reel very gently and have them remain there until the machine stops, whether the reel revolves fifteen or one hundred and fifty times per minute and have the motion governed entirely by the crank and brake? Let us hear from others on this subject.

Wyoming, N. Y., May 20, 1884.

EDITORIAL.

It is not strange that the majority receive with distrust and suspicion the sayings of those who claim to be working for the interest and welfare of others. It is painfully true that, as a rule, the great lever with which the business world is moved is self-interest. Indeed, the great majority that goes to make up the business world is largely controlled by self-interest, and blind to all else, so much so that thousands of the weaker and more timid ones are trampled under foot and crushed in the grand rush for popularity, self-aggrandizement or wealth. It has been clearly and practically demonstrated through the history of the ages and nations of the past and present, that the masses are a class of toiling producers, subject to the dictations of the few who are more shrewd and capable than they, and it is also true that labor is and always has been, the slave of that capricious and tyrannical master, capital.

Turn which way you will, you must admit that almost every effort to organize and conduct associations for the benefit and protection of the laboring class or producers has proven a failure, and with nearly every struggle against the wrongs of injustice and oppression comes the heart-sickening and crushing defeat. The monopoly of capital and power is one of the greatest evils that ever cursed this world. What have men not been led to do in the shape of sin and crime for the sake of grasping a few golden dollars! How many men, who might have been a blessing to humanity, have sacrificed their manhood, aye, their very souls to the greed for gain!

Just as soon as any new enterprise comes up that promises to prove remunerative for some one, these human land sharks hover around and over it in schools, as sea sharks follow the ships in order that they may grasp whatever may be unfortunate enough to fall into their clutches.

Only too frequently we find such parties playing the rôle of confidential friends and benevolent persons, when all they have a care for is the "mighty dollar." Nor is beekeeping free from this. The time will yet come when all the silent and open injustice and wrong that have been done to father Quinby, Rev. L. L. Langstroth and others will come up in judg-

ment against those who will hang their heads in shame. Aye, and the time shall yet come when the beekeepers of America, realizing the truth of some of the statements that have been made, will rise *en masse* and demand that we have state and national associations which shall stand high above journals and bee literature as the supreme judges upon all matters pertaining to practical bee culture and the interests of beekeepers, and when the need of such a reform is thoroughly realized the work will be done.

It seems to be a fact that a large portion of what has been written for our journals was intended to help the supply dealer, and those dealers having a journal at their command or pledged in their interests are the most fortunate, hence the most successful. Who makes the most money out of the "dollar-queen" boom? The producer, who gets from forty cents to seventy-five cents for the queen, or the dealer who purchases them at that price and sells them for one dollar? If all the truth regarding the dollar-queen business were known, the statement lately made by one of our editors that it had been such a benefit to the beekeepers would be severely criticised. Our knowledge of the queen business warrants us in stating that first-class and carefully reared queens cannot be sold for one dollar each, with profit to any one, except the dealer, who purchases the queen to sell again; and the cheap or dollar-queen traffic, instead of being a blessing, has proven a great damage to apiculture. If more of our attention were given to rearing better queens in preference to cheap ones, we should have a better class of bees.

A large portion of all that is done to advance apiculture in this country is or has been done in the interest of those who have goods for sale, and such an article as that written by Mr. Doolittle, which appears in this number, touches the large supply dealer in a tender spot, and we were not at all surprised to find the editor of one of our journals taking issue with Mr. Doolittle.

What we want is a system or method for teaching apiculture to the masses, which shall benefit all classes of beekeepers, and this *never* will be until our associations are thoroughly organized. We hope and trust that in the near future, bee culture will be taught as a branch of agriculture, and then each farmer who has a care for bees can produce the sweets used on his own table in preference to depending on the adulterated sugars and syrups with which the market is filled, besides reducing his grocery bill fifty dollars or more per year, and benefiting every crop that depends upon insect life for its proper fertilization.

Again, we have come to the conclusion that in the majority of instances, beekeeping should be carried on in connection with some other vocation or industry and not depended upon as a specialty. There are locations where one can

devote his time exclusively to it and make it prove remunerative, but as a rule he will reap far better results by combining beekeeping with agriculture, horticulture, or poultry raising.

Prominent apiarists and those whose income is derived from practical beekeeping (and not from the sale of goods) agree in saying that there is need of some kind of a reform among beekeepers. How shall it be brought about? We leave this with our readers to decide. Remember, however, that the beekeepers and those who keep bees for profit are they who *must* prove the principal movers and strongest advocates of any measures that shall improve our condition.

THE APIARY.

The weather (here in New England, at least) has taken a sudden change and it is warm and muggy. The fruit trees are in bloom and the bees are at work gathering in the precious nectar.

Should this condition of affairs continue, the colonies will build up rapidly, but do not be too anxious to remove cushions and packing. "Make haste slowly," and add brood combs only as they are needed. If any of the colonies are very weak, you had better unite them than to try to build them up with brood from other colonies; but if there are what we may call medium colonies it will pay to take a comb with the adhering bees from each of several strong colonies and give to them. Of course, when doing this, you must be careful not to remove the old queens with the bees, and if honey is not coming in fast it would be well to cage the queen in the weak colony, upon the side of the comb, while you are uniting them.

Never let bees hang in clusters upon the front of the hive idling away their time when there is plenty of honey in the fields. Make room for them in the brood nest or surplus box, and if the hives are exposed to the direct rays of the sun it is better to shade them.

This is a good time to get full sheets of comb foundation built out for future use; and here let us state that in fastening comb foundation into the frames, where wire is not used, we have given the preference to slender strips of wood tacked upon the top of the sheet, pressing the wax into the top bar of the frame; let the foundation touch the end bars down about four inches, and then cut it away beginning with nothing and leaving bottom of the sheet of foundation at least one-fourth of an inch from each end bar. This will induce the bees to attach the upper ends of the sheet of foundation to the end bars, and cutting away the bottom allows for sagging.

One can let the strong stocks build out the foundation until the cells are, say, one-fourth of an inch deep before eggs are laid in them and then use them in weaker colonies. Whenever one removes a card of brood from a strong colony, its place should be supplied with a sheet of foundation.

Always remember that beekeepers must watch and care for their pets. Many long months are required to prepare them to gather what honey may be secured in a few short weeks, and that unless our colonies are strong and populous when the flow comes and furnished with the proper number of sections or combs, the harvest will

pass and a large portion of the honey go ungathered.

It will pay you always, when securing honey for the market, to use only the *neatest* and *best* sections and cases; do not think for one moment that those who cry *cheap goods* furnish *first-class* goods; It is very aggravating to find when your goods arrive that they are not cut accurately and are made from cull lumber: as some writers say, "we know how it is." Whatever you purchase let it be a good article and it will repay you many times for the difference in cost.

Do not be in too great a hurry to remove the chaff cushions or packing; blankets will be useful for some time yet.

In fastening foundation in the sections we always found a mixture made as follows the best thing with which to do it.

Take two parts rosin and one part beeswax and melt them together; to use it take the section in one hand and the foundation in the other. Touch one edge of the strip of foundation into the heated mixture, after which touch it upon the under side of the top of the box to which it will adhere. After this has cooled (which will be almost instantly) it will be impossible to break the strip away without tearing the foundation. After trying all other methods we find this the best.

Some beekeepers pay but little attention to the size of the entrances to the hives. This is quite important, especially with weak or medium colonies and at this time in the season.

Where the colonies are not quite strong it will pay, after the bees are through working for the day, to contract the entrance so that it is not more than an inch in length or perhaps even less. These entrances should, of course, be enlarged during the middle of the day.

The contracting of the entrance retains the heat and favors brood rearing.

When putting on sections do not give the bees more room than they can fill; and sometimes, if the bees are a little reluctant about going into the sections, it may be wise to hang a comb of hatching brood in the story with the section until they get started, and in all cases when handling the bees look out that you do not leave the queen outside. Sometimes when removing the cloth covers we have found the queens on them; look out for this, as it does not pay to lose a queen just when you need her the most. Never lose an opportunity to sow some Bokhara or sweet clover seed in the waste spots; the more pasturage the more honey, and this poor land might as well yield some returns.

While those who have time and inclination can rear their own queens yet we know that those who give their time and study to queen-rearing can produce better queens on the average than those reared by the general beekeeper, and we would advise our readers who wish to purchase first-class breeding queens to procure them from some reliable breeder who gives the queen breeding department his personal supervision. Queen-rearing is no "boy's play" and more rests in securing first-class breeding stock than we are apt to admit.

If you wish success, systematize the work in the apiary, be prompt and active and take advantage of every opportunity as it comes.

EXCHANGES.

How much does a Pound of Honey Cost? by G. M. Doolittle. —On p. 95 of Gleanings, present

volume, Mr. H. White says: "Don't we say too much about getting a big price for our honey? Would it not be better to try to raise it so we can afford to sell it cheaper? It does not seem to me it will ever become the staple article we wish, unless we can sell it very cheap." On the same page, replying to the above, our worthy editor says: "I agree with you in regard to furnishing honey at a low price, and have felt quite a degree of pleasure in furnishing honey for only 10 cts., in 50-lb. cans."

From the above it would look as if *we* beekeepers were asking an exorbitant price for our product, and getting *rich* out of the sales of honey from our apiaries, thus hindering the rank and file of the people from consuming our honey, by the high prices we ask for it,—but, wait a moment. Another worthy editor speaks from p. 181 of AMER. APICULTURIST, for 1883, and says: "After paying the supply-dealer's bills, the current expenses of the apiary, the cost of shipping the honey, and the demands of those who sell the honey for the beekeepers, there is but a small amount left for their own remuneration for their hard season's work, and the interest on the capital invested. Do we state the facts in the case? It may be pleasing to listen to the reports of large crops of honey; but when we sit down and carefully estimate how many pounds of extracted or comb honey must be taken from an apiary of one hundred colonies to pay the expenses, and give the apiarist fair compensation for his time and investment, a great deal of the beauty of the picture is spoiled."

Again, W. E. Clark, President of the N. E. B. K. Convention, says in his address to that convention in 1884: "The beekeeper's calling is one of sweat and toil; every dollar that the beekeeper gets is well earned." Mr. Clark is a thoroughly practical man, and any one who has read any of his writings cannot help but feel that his statements are practical and truthful.

Now, from the above and other similar expressions which I have read, I cannot but conclude that we are not thoroughly posted regarding what one pound of honey costs us to produce the same; and the object of this article is to show, as nearly as may be, what the actual cost of one pound of honey is.

P. H. Elwood, who is one of the largest honey-producers of this state, once said to me that any man who could successfully manage an apiary of 100 colonies of bees, spring count, would command a salary of $1000 in any business he might see fit to engage. This statement of friend Elwood I believe to be near the truth, after a careful comparison of men, and salaries obtained by different persons, during the past few years; but in order not to be considered extravagant, I shall reduce it one-half, and allow $500 dollars as the necessary amount to pay a man competent to successfully manage an apiary of 100 colonies of bees. Then we have a capital of $600 invested in bees, calling each colony worth $6.00, which would give $36.00 in interest to be added to the $500, calling the interest at 6 per cent, and $4.00 as taxes, where our bees are assessed at $5.00 per colony, as mine are. Then we have $200 invested in hives and fixtures, which, in order to keep good, and renew them when necessary, will require double interest at least, or 12 per cent, which gives $24.00 more. Then we must buy or make 5,000 sections =$25; 200 shipping cases and glass for the same, costing $40, and 50 lbs. thin foundation for sections, amounting to $30, at 60

cts. per lb. To this we must add cartage of our honey to the nearest city or railroad, costing me $11.00, and the rent of a shop and grounds for our apiary, costing $30 more, so that we have $700 as the total cost of the working of our apiary of 100 colonies of bees. If we own the shop and land which are required for our apiary, the cost to us will be as great to pay the interest and taxes, keeping it in repair, etc., as the rent would be were we to hire the same. Because a man owns a thing does not make it cost him any the less, even if it does make him feel more independent. Many seem to suppose that when they own a thing, the use of it does not cost them anything; but often a few years will prove that the use of it would have cost them less had they rented it. Thus we have $700 as the actual cost of what honey our 100 colonies of bees may produce us. The next thing is, to ascertain how much honey we can expect year after year from them.

As the honey-production of our country has been of great interest to me, I have carefully noted all convention reports, and also all reports given by practical and successful apiarists, and I find that the average yield of honey, year after year, reported by this class of individuals, in the United States, is not far from fifty lbs. of comb honey. Into this estimate I have not taken those who keep from three to five colonies of bees, and "gush over" with a report of from 200 to 300 lbs. of honey per colony, nor, on the other hand, those who have made an entire failure of keeping the same number of colonies. Such as these do not come under the head of successful apiarists, capable of caring for 100 colonies of bees. Thus we have 5,000 lbs. of comb honey as the equivalent of our $700, taking the years as they average throughout the U. S. Now by dividing the $700 by the 5,000 lbs., we shall have the cost of one lb., which proves to be 14 cts.; so that, if the comb honey of the U. S. nets the producers less than 14 cts. per lb., we are keeping bees at a loss; and if more, we are making our avocation profitable.

The same holds good regarding extracted honey. The case is the same, with the exception that, perhaps, the packages both for storing and shipping cost a little less. From a careful account kept with my own bees, and a summarizing of reports, I believe that about one-half more extracted honey can be obtained from the same apiary than comb, which gives us 7,500 lbs., as the product of our 100 colonies. The cost ($700) divided by this gives us 9⅓ cts. as the cost of one pound of extracted honey. By allowing the ⅓ cent as saved on the cost of packages over comb honey, we have 9 cts. as the actual cost of 1 lb. of extracted honey throughout the U. S. In this, Mr. T. W. Fleming (page 99) will find an answer to his questions regarding the profitableness of extracted honey compared with comb honey.

Now, having the above before us, I wish to say to friend White, that if, in order to have honey "become the staple article we wish," it must go lower than 9 cts. per lb. for extracted, or 14 cts. for comb, it is a very poor policy for us to wish for a staple article; for of what object would a staple article be, when we could not live at the price paid for the production of it?

To friend Root I wish to say, that I feel *no "degree of pleasure"* at having him sell a product of mine so low that he cannot afford to pay me for the same what it actually costs me. By page 212,

Gleanings, I see he pays 8 cts. per lb. for a nice article of extracted honey delivered at Medina, which he sells, I suppose, at 10 cts. To deliver this honey in Medina would cost me 1 ct. per. lb., or nearly so, so that 7 cts. is all I would have left for what actually cost me 9 cts. Thus if I were obliged to sell my whole crop at these figures, I should have my whole salary cut down to $350 a year, as the other costs for production cannot be reduced. Worse still. I have just got returns for a small lot of extracted honey sent to New York, which nets me only 6 cts. per. lb., so my wages must still come down to $275 per year. I believe I am entitled to as good pay, after spending years of toil and study, sleepless nights in planning and framing ideas to be carried out in the apiary, and days of hard work in the hot sun in carrying out these plans, as are our lawyers, doctors, and clergymen, who sit in their easy-chairs in cool and shady offices, and have given no more time and study in preparing themselves for their avocation than I have. And yet I am called to come down to a tithe of their income, in order to have honey become a "staple article."

I here leave the subject by asking if our low prices and dull markets do not denote that the production of honey is being overdone; in other words, is not the supply more than adequate for the demand, at living prices?

In the above I said nothing in regard to the rate of increase, for at the low price ($6.00) I placed the bees, the hives, combs, and 30 lbs. of honey in the fall, are worth the $6.00, so that the increase might as well be destroyed, as sold at these figures.—*Gleanings.*

CORRESPONDENCE.

ED. OF AM. APICULTURIST:

DEAR SIR,

As there has been so much said for and against the Syrian and Cyprian bees of late in the different bee papers, I thought I would give you some of my experience with them during the last two years.

I had no pure Syrian or Cyprian workers to try as honey-gatherers, as I had to keep my poor stocks in a reduced condition to keep them from natural swarming out, fearing lest I might lose the queens in swarming. Besides, I had to draw all the time on those colonies for brood from which to rear queens. The workers of those two varieties were therefore of queens mated with Italian drones. The first year's result: hybrid Syrians first, hybrid Cyprians next, Italians third. But the workers of one Italian queen from Mr. Harbison, of San Diego, came near to the Cyprians; but by the appearance of the workers, that Italian queen was mated with a Syrian drone. As the Syrians surpass the Cyprians as honey-gatherers, and the latter are rather vicious as regards stinging, I shall hereafter rear only Syrians. Mr. Henderson, to whom I had written on the subject, informed me that his experience coincided with mine in this matter.

Last year was a very poor season here in Oregon and adjacent, the white clover having been frozen out for the last two winters, and there was nothing but the fireweed for the bees to work on. The bees here had therefore no chance for a fair trial; but in Washington Territory, the drought had produced a great deal of honey in the flowers and plenty of honey dew.

Near Lackamas lake in Clarke Co., I had an apiary of eighteen colonies. Four of those had lost their queens during the winter,

and it took them long to recover. The labor of four other colonies I had to sacrifice to rear brood to build up young swarms. I never hive a new swarm without giving to it at once two or three combs of brood in all stages, and I never had a new swarm so provided leave their new home; because, if the queen in swarming was lost, the workers will at once prefer rearing a new queen of the brood given them, than to return to the parent stock and expose themselves to the ridicule of young men who have left home in great glee and have been forced through bad circumstances to return with sheepish faces betraying the fact that their enterprise is "fizzled out."

This year's result with eighteen colonies was one hybrid Syrian stock with increase of two natural and seven artificial swarms, three hundred pounds of comb honey, besides filling brood combs of comb foundation; Italian bees two hundred to two hundred and twenty-five pounds comb honey each, but no swarms; one strong black colony transferred to one of my large Oregon chest hives, but eighty pounds comb honey and no swarms.

The only fault I can find with the Syrians is that their queens, like the Cyprians, are very shy, easily lose in handling combs, and will take wing easily when touched by any smoke. I have also noticed that the Syrian workers exhibit considerable foresight for the self-preservation of the colony in case the queen becomes disabled, or in any way unfitted for her position as mother-bee, and will at once try to supersede her. The Syrian bees must be handled gently and with care, and they do not seem to like loud talking near the hive when it is open. I have my Syrian queens from Mr. Jones of Canada, Mr. Alley of Massachusetts, Mr. Henderson of Tennessee, and Mr. Harbison of California.

I expect to try the Albino and Carniolan bees also next season if I can have them safely shipped here, which is not so difficult now that the N. P. R. R. is finished; as the distance from Portland, Ore., to New York is now reduced to six or seven days' travel. If I could get all my queens shipped by Mr. Alley in his cages, with the sponge saturated with his liquid food, and the queen accompanied by a few workers completely excluded from the light, I should have no fears as to the result in ordering of Mr. Benton a queen from Beyrout, in Asia, to reach me in safe condition.

I wish to mention here, as one who has purchased many queens, and carefully observed the different modes of packing and their results, that water, bee bread and bee candy are useless in shipping queens. The two former are only needed for brood-rearing, and the latter is easily hardened by the air and seems hardly ever touched by the bees "en route," to judge by the appearance of the candy upon arrival of the cages. The exclusion of the daylight is most essential, as the light makes bees worry to gain their freedom. The next essential point is the smallest number of workers admissible to accompany the queen, as the numerical reduction of the workers reduces the high spirit of the few, and they soon cluster together around the queen and keep quiet. A few bees need but little air, and Mr. Alley's cage gives sufficient. That there might be changes in those things required is certain, according to what climate or climates the bees "en route" may have to pass through. They would need more ventilation when passing through a very hot climate, and should not be sent closely confined in a mail bag.

I received from Mr. Alley last season two queens, each with but about one-half dozen workers. When they arrived, after a journey of seventeen days, they were in that semi-dormant state of bees in the winter time, when a queen's fertility cannot possibly have been impaired. When I opened the cage, the queen and a few workers commenced to crawl slowly but would not come out; then I gently knocked the cage on the table and they fell out, crawling about but soon coming to full consciousness and life and taking wing. Every worker came alive and in perfect health, and not one of them died after discharging fæces before a window. Can you expect anything more? I actually believe that a queen with her few workers would stand a voyage that would take no more time than the time bees can be in winter quarters without a flight to discharge fæces.

My opinion regarding rearing and shipping queens is that we need an "experimental beekeeper's association" very much. Such an one properly organized and conducted would prove a boon to American apiculture.

Yours respectfully,
GUST. MARHARD.

Portland, Oregon, Apr., 1884.

ED. OF AM. APICULTURIST:

DEAR SIR,

OF late there has been considerable discussion in our journals as to which was the best and most profitable race of bees, all things considered; and, while I have no desire to injure anyone's business, wishing only, as friend Hutchinson says, "to bring to notice a few facts that seem to have been overlooked," perhaps a short article founded upon years of experience would not be out of place in your journal. Hence, with no selfish motives in view, and with no axe of my own to grind, I have decided to relate some of my experience.

I commenced beekeeping in 1872 with one box colony of gray bees, which I purchased of a neighbor whose bees seemed to be very hardy, gentle, of a uniform size, and as large as any Italians that I ever saw. I handle my gray bees when hiving them or hunting for queens, or whenever working about the apiary, without any protection whatever. This with my Italians would be perfect madness.

I have purchased queens of some of the best breeders in the states, hoping to get the best in the market, but I never have secured any yet that hold their own with my gray bees. The Italians commence breeding a little earlier in spring, but they dwindle away so badly that when fruit blossoms appear they are not as strong as the gray bees as regards honey gathering. The gray and Italian bees are about alike on white and red clover, but when buckwheat comes the grays beat the Italians by fifty per cent. I have tried wintering both races in doors and out-of-doors. The grays seem to become dormant, not caring to move about much, while the Italians are uneasy, crawling out of the hives and wasting away.

Since first purchasing my gray bees they have steadily increased in numbers by natural-swarming,[1] until I have 120 colonies all in the same apiary, in an average season giving me a nice surplus of box honey, and in a very poor season, holding their own without being fed, neither do they spring dwindle and they are very active and suc-

[1] When working for comb honey I return all of my swarms, so that I have no increase that season.

cessful in protecting their homes against robbers.

I think that had one-half of the pains been taken to improve our best native bees, that have been taken to procure the foreign races, we should have been fully as well off as regards the general results.

Of late years I have wintered my bees in a frost-proof building, as I have found it a great saving of honey, and, at some future time I will tell the friends, if they wish, how this building is constructed, so as to carry bees safely through five months of as cold winter as ever visited my section.

I also consider that it is all wrong to lose bees by having them abscond when they swarm. I have had more bees come to me than ever I have lost in that way. Also, practical knowledge has proven to me that bees do not injure fruit trees; on the contrary, we have to prop up our plum and peach trees to keep them from breaking down with the weight of fruit upon them, and this right in our apiary.

D. F. Lashier.

Hooper, Broome Co., N. Y.

Ed. of Am. Apiculturist:

Dear Sir,

The Holyland bees have been the subject of a great deal of comment, and as I have had perhaps as extended an experience with that race of bees, as any person in the state, I take the liberty to offer to your readers some facts that I have gleaned from that experience.

I was a near neighbor to Mr. D. A. Jones of Beeton, Ont., when he made his first importation of bees into Canada, and I was fortunate enough to see that shipment. Since that time I have watched with considerable interest the various experiments that have been tried with them, and have read whatever has been written regarding their good or bad qualities and I am led to believe by what many persons say, that they never have seen a pure Holyland bee. It is a very easy matter to tell them from the other races when once you have become familiar with their peculiar traits and markings.

I fear that many parties, who supposed that they were purchasing pure Holylands, received nothing but hybrids, and have been deceived and disappointed.

Last fall, I put twenty-four colonies of Holyland bees into winter quarters; after they had been in the cellar 164 days they came out all right and every colony went to work bringing in pollen from the willows, on the same day that I set them out of the cellar.

Last season I put Holyland queens in ten colonies for a Mr. Fogg. I prepared them for him in the fall and they are all doing finely now.

There is one colony in particular to which I would call your attention. It was a good strong colony with eight Gallup frames, and was contracted and packed as for winter. Upon examining it after it had been on the summer stand five days, I found that the queen had the combs nearly full of eggs and brood, and the bees had six or seven queen cells well under way. How is that for cold "down east?"

As regards their honey-gathering qualities (which is a matter of great importance to me), I have found them unequalled by any bees that I have tested, and I have such faith in them that I make the following offer: I have twenty colonies of Holylands, and Holylands mated with Italians that I intend to run for section honey

this season, and if there is any one in New England who wants to try twenty colonies of any kind of bees (excepting Holylands) against mine, I will give the best colony of bees that I own to the party procuring more section honey from his twenty colonies than I do from mine.

Now, if the other races are so much superior to the Holylands, give them the trial, and if any one has an axe to grind, I will furnish the grindstone and turn it also.

W. H. NORTON.

North Madison, Me.

NOTES AND QUERIES.

THE most interesting and instructive address on "Agriculture: its Needs and Opportunities," delivered by Prof. W. J. Beal, Vice President, Section F, before the American Association for the Advancement of Science, Minneapolis meeting, contains the following notes which will doubtless interest our readers, and show us that some of our leading agriculturists would willingly advocate apiculture as a branch of agriculture, and work for its interests, if our beekeepers' associations were to assume their proper position, and bring apiculture to the notice of our agricultural associations. Prof. Beal speaks as follows: "I need hardly add, that he who finds or breeds a race of honey-bees, which is hardier, more industrious, longer-lived, quieter, possessed of longer tongues, and, last but not least, possessed of blunter stings, with less inclination to use them, he who can succeed in any or all of these objects is entitled to rank with the man who shall cause two blades of grass to grow where only one grew before."

"If it may be true, as my experience during the past six years helps to indicate, that bumble-bees aid in fertilizing red clover; then farmers should try and encourage these interesting insects, even though they be disagreeable companions.

Bumble-bees prefer to raise their colonies in old nests of meadow mice. I mentioned in my last report, that it had been suggested that we should not keep many cats, nor allow hawks, foxes, or dogs to catch these mice; for they make nests which are quite necessary for the bumble-bees, which help to fertilize our red clover, and thereby largely increase the yield of seed.

Perhaps it may not be altogether visionary to predict that men will yet engage in raising bumble-bee queens, and sell them at a fair profit, for starting colonies to improve the yield of clover seed. We may yet have conventions and societies where the leading object shall be to discuss the merits of different sorts of bumble-bees."

[While it may be possible that more attention will be paid to the care of the bumble-bee; we think that the time will yet come when we shall have a race of honey-bees which will find no difficulty in gathering honey from the red clover, and it will be far more advantageous to develop a race of honey-bees, which shall be capable of doing this because they will yield more profit for the labor and trouble devoted to their care.

There are a few of our old subscribers who have not sent in their renewals as yet, and we hope that they will notice what we said last month regarding this and *renew at once.* We are pleased to state that only two of all our old subscribers have asked to have their subscriptions discontinued, and

one of these is nearly blind, and cannot read it. This speaks well for the "Api." Now if you have forgotten, or have been too busy to attend to your subscription, please remember it this month.

Once more we would urge the beekeepers of Massachusetts, who have any interest in the cause of apiculture, to correspond with Mr. J. E. Pond, jr., of Foxboro, Mass., regarding it. The interests of the beekeepers of this state demand that we have such an association, and we hope and trust that there are enough active and interested beekeepers in Massachusetts to organize a first-class association. Write and tell Mr. Pond what you think about it.

We have just received from Geo. Stanley & Bros. of Wyoming, N. Y., one of their automatic honey extractors, but so late that we have as yet been unable to put it to a practical test, but when we have done so we shall report further. It is well made of first class material and in some respects resembles automatic extractors that we have seen before. The mechanical principles on which it is constructed seem to be all right.

The Stanley Bros. have been working hard to supply a need that has long existed among practical beekeepers, viz.: that of a perfect automatic four-comb extractor and if this one stands the test to which it will be put the coming season its originators will have conferred a boon on American apiculture, as every beekeeper who makes beekeeping a specialty and has from fifty to one hundred colonies will need such an extractor. We are aware that many futile attempts have been made to invent one but this is no reason for condemning something new. If the Stanley Bros. extractor proves a success (and we have reason to think that it will), great credit is due them. If we are to compete with sugars and syrups in order to find market for our honey, any implement, that will facilitate the operations connected with securing our crops of honey, must be welcomed with pleasure.

BOOK NOTICES AND REVIEWS.

Mr. John Phin of New York city has kindly sent us a copy of his new work entitled "Dictionary of Practical Apiculture." We have had only time to glance at its contents, hence we are unable to give a critical description of it. We are, however, much pleased with it, and hope that its author will meet with success in the sale of his work.

Very few will ever comprehend with how many difficulties Mr. Phin had to contend in compiling this work; and now that a start has been made, it will be comparatively easy to correct and revise it, until we have a complete encyclopædia of beekeeping terms.

Prof. A. J. Cook writes that he has sold 2000 copies of his "Manual" during the last twelve months. We are pleased to know this, as his work stands at the head of all American publications upon apiculture regarding the natural history and anatomy of the bee. For this reason it should be in the library of every apiarist.

We can heartily and truthfully feel glad that that the professor (and any other apiarist who has for his motive the advancement of apiculture) meets with abundant success.

We have just received from the publishers, No. 1, Vol. 1, of the Bulletin of Massachusetts Natural

History, edited by Mr. Winfrid Stearns, of Amherst, Mass.

We are much pleased with it, and hope that it may not only prove all that its author desires, but also be well supported.

QUESTIONS AND ANSWERS.

SINCE we have opened this department, we have been cheered by the kind words that have been spoken regarding it, and we hope to make it the most interesting department in our journal, and in order to do this, we would urge upon our readers the necessity of their taking a part in the work. Please feel at liberty either to ask questions, or send us your answers to any of the questions that may appear. We cannot conduct the journal as we would wish, unless you take an interest in it, and we hope that you will join us, and make the question and answer department so interesting and instructive that you cannot afford to do without the journal; let us hear from you.

QUESTIONS BY THE EDITOR.

1. As our State and National beekeepers' associations are, or should be, the most important factors in protecting the interests of beekeepers and advancing the cause of apiculture, it becomes a subject of vital importance to know how we shall conduct such associations for the best good of all concerned. Now will you kindly give our readers your opinion regarding this matter?

2. Do you find in your experience that the bees store honey more readily in the early portion of the honey flow, at the sides of the brood nest or on the top of the same. How about this later in the season, and do you find any difference in this regard, between storing honey in the sections or brood combs?

3. Do you not find that section honey when taken from the hives should be removed *at once* to the store room, in order that the moths may not deposit their eggs in it?

4. When you have a large number of colonies boxed for surplus honey, how do you ascertain their condition regarding the swarming fever, so as to avoid trouble and confusion?

ANSWERS BY P. H. ELWOOD.

1. Beekeepers' associations are becoming better yearly. When it shall become a recognized fact that, taking everything into consideration, beekeeping is among the least profitable occupations instead of the most profitable, conventions will lose their "fish story" character and become entirely devoted to the interest of the honey producer rather than to the interests of the supply dealer. Associations could arrange for gathering statistics of the honey crop in time for use in selling our honey. Such information would have been worth many dollars to beekeepers last season in marketing their honey, especially the fall crop. They could devote more attention to packing and grading honey, etc. The question of adulteration is important, but why not throw a bright light toward those beekeepers who adulterate by using fish-bone foundation in sections? and, instead of only singling out some firm who pack comb honey in mixed honey and glucose and label as the law requires, why not hold up to light those who pack in the same manner with even more glucose and no statement of the same on the label? It is a well established fact that bees do not always thin the base of foundation, and our conventions should impress upon the minds of every beekeeper the importance of using such only as is as thin as the base of natural comb. When consumers of comb honey who have never heard of such a thing as foundation, speak of the large amount of wax in the honey and say the honey has the flavor of soapsuds, it is time that producers awake to the evil that threatens to seriously curtail the demand and consumption of comb honey. In comparison I regard the packing of comb honey and glucose in glass jars when properly labelled, a subject of little importance. If the consumer does not like the flavor of the liquid surrounding the comb as well as the comb honey, he can buy only the

latter in boxes the next time he buys. But who shall estimate the loss when beekeepers themselves shall adulterate what has heretofore been thought to be pure beyond the power of the adulterant?

2. Better on top usually, and better in brood combs always.

3. Yes.

4. Examine them, to be sure.

Starkville, N. Y.

ANSWERS BY J. E. POND, JR.

1. This question opens up a most important matter, and one that needs mature judgment to answer in detail, my present opinion in regard to the subject, which however may be somewhat modified after deeper reflection, is, that the national and state associations should be made representative bodies in order to bring about the best results. The beekeepers in adjacent localities should form themselves into associations, for the purpose of becoming better acquainted, and for the promotion of social and fraternal relations. These local associations should select delegates with which to form the state associations, and the national association should in turn be formed of delegates elected from the state associations. In this way, unanimity of purpose will be gained, and the greatest good to the greatest number must necessarily result. I have merely outlined my ideas, without going into details, and whether they are considered of any value or not, I trust some means will ere long be devised, by which the business of apiculture will occupy the position it ought, as one of the important industries of the world.

2. In my own experience, I have always found a great disinclination with my bees to store honey in sections in the brood chamber, at any season. This I presume is owing to the honey flow itself. I have never yet been fortunate enough to see those times when it fairly rained honey, that have been described by the more fortunate. The honey flow with me is gradual, and covers the whole time with short intermissions from fruit bloom to fall flowers. In working for comb honey, I contract brood chamber to smallest possible dimensions, and force the brood up to the top bar, and find little difficulty in getting honey deposited in sections over the frames.

3. I usually remove sections as soon as they are filled, and am troubled very little with moth worms. I have about concluded that worms will not trouble comb, in which there is no pollen. Last season I was not obliged to take any measure to get rid of worms, and I carried over a large number of brood combs and partially filled sections.

4. For the last eight or nine years I have not been able to care for a large number of colonies, consequently am unable to give an answer based on real practical experience, and as theoretic answers are of little value, I will not take space in theorizing here.

Foxboro, Mass.

ANSWERS BY G. W. DEMAREE.

1. Will answer this question soon.

2. The honey bee is preëminently a creature of habit. In the early spring when the first new honey is gathered it is invariably stored near the brood, whenever it is located in the hive. And I have found that this beginning to store the new honey near the brood, becomes a habit with the bees, and they persist in cramming every available cell near the brood, rather than to break for new grounds.

But if the brood department is contracted, so as to contain but little else than brood, the bees will readily enter the surplus cases, and once started there, it becomes a custom or habit with them to carry their stores above, and they will follow up the habit to the neglect of the necessary stores for winter, in the brood nest, in case the fall flowers are cut off by drought or other causes. My experience is, that the intelligent apiarist may habituate the bees to store the honey just where he wants them to store it. The difference is simply a matter of habit or custom with the bees. They work just as well in one place as another when the habit is formed, and all this is in the hands of the skilled manipulator.

3. Yes. The safest place for section or comb honey in any shape is in the honey storeroom, and the sooner it is put there the better.

4. My surplus cases are made open at top and bottom, and contrary to the advice of some, I use a bee quilt between the tops of the cases and the

covers of the hives. Some hieroglyphics of my own devising indicate to me what the cases contain, be they sections or shallow frames for extracting. Well, when it is desirable to know the condition of the surplus department, all I have to do is to shove the cover of the hive to one side, turn up the corner of the quilt, when a little smoke causes the bees to retreat downward exposing to view the white finished, or unfinished combs, as the case may be. The work is rapidly performed.

[Through some inexplicable cause, Mr. Demaree, in answer to questions in last number of the Journal, was made to say what he did not intend, and which materially changed the meaning he intended to convey, viz.: in No. 6, 5th line, "prevents" should read "permits;" in No. 9, 4th line, "passed" should be "pressed" and 5th line "experiment" should be "implement." We will endeavor to be more careful in the future.— ED.]

ANSWERS BY E. E HASTY.

1. Being an utter and incorrigible heretic on the convention question, perhaps it is hardly worth while to trot out my views. 'Spects I should abolish conventions altogether, and in place of them systematize friendly visiting of one another's apiaries.

2. I think Italians do store honey more readily by the side of the brood nest, both early and late; but my Italian fever has run its course, and I no longer keep pure Italians. Well-bred hybrids and blacks are so free to put honey above, whenever there is any to store, that my present practice is to give no side sections whatever, and take all surplus from the top. Storing in the brood-combs below seems not to come much in vogue among my bees until a sort of presentiment of approaching winter comes over them.

3. My experience with moth-worms in sections is that they almost always originate in a stray cell of pollen. I feel convinced that the moth has learned to lay its eggs on the stigmas of flowers, and that the bees gather and bring home moth eggs with the pollen. The apiarist who lets moths breed in thousands on his domains, ought to be punished with wormy honey. Unless moths are specially plentiful, I do not consider sections much in danger, if delayed a little in transit between hive and honey-room. My crop in 1882 was the wormiest I have had, but no more worms developed themselves during the summer of 1883, although quite a lot of the sections were kept over in a room that moths could get into if they wanted to. Bees were getting in continually and a general raid was only prevented by the fact that they always went to the window.

4. Swarming fever with me is so incurable, that I do not think it pays to take off sections to examine the condition of the brood nest. A general overhauling of the colony incites to swarming, I think. If some brood is removed to discourage swarming, perchance it only does about as much good as the disturbance has done mischief. Better let them swarm if they will; I think they will do it anyway.

LETTER BOX.

Sterling, April, 1884.

DEAR SIR:

Bees have wintered well here: they flew last November about the fifteenth and did not get another fly until about March 15. They have gathered pollen only one day in April, as the weather has been very cold. We wintered our bees on the summer stands in chaff hives on Langstroth frames. I find that bees winter in single-walled hives with division board on sides just as well as when in chaff hives; also side packing in chaff hives is not essential and I cannot see any particular difference between covering the combs with coarse bagging or with cloth that is covered with propolis so that no air can escape through it. The great secret of wintering bees is to get ready for winter before winter comes, and have young bees and plenty of honey and then there is no trouble about wintering.

W. R. CROCKETT.

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BEE-CULTURE IN THE SOUTH.

BY G. W. DEMAREE.

THE past winter was the hardest one in many respects ever known in these parts of our great country. That my entire apiary of eighty colonies came through such a winter in fair condition, without any protection except from one to three quilts spread over the frames, was an agreeable surprise to me. On the fifth of January the temperature went down with a swoop to 20° below zero, and nothwithstanding this unprecedented cold snap, some three-frame nuclei survived it, and came through in good health. I have long been of the opinion that good healthy colonies of bees, of the proper age to stand the confinement incident to winter, will stand any amount of cold—if kept dry—provided the intense cold does not continue but a few days at a time, as is generally the case in such climates as that of central Kentucky. I really think it a mistaken notion that bees must be kept breeding till late in the fall in order to prepare them for winter. I prefer bees of mature age to winter successfully.

Last fall, owing to want of rain in time to give fall pasture for the bees we had but little fall honey, and no late breeding. During the first days of August I introduced about twenty queens, daughters from a fine imported Italian queen, in order to supply my queen-rearing apiary with an abundance of Italian drones that I knew to be pure, and I noticed that these young queens laid but little, and their eggs were wholly neglected by the bees, because they were getting no honey. The consequence was, by the 20th of August there was not a cell of brood in the hives. I thought that period was a little early for breeding to stop entirely, but it did not disturb me in the least, for I had seen the like before, and without bad results. The last of these old veterans hung on with their ragged wings till white clover began to blossom, living to be nine months old, presuming that those last hatched held out the longest, which is by no means certain.

These are now magnificent colonies, covering ten standard Langstroth frames and filling two cases of twenty-eight 1 lb. sections each.

A peep into any of these pure Italian homes with their double cases of white sections in process of completion would take the conceit out of the "business bee" business, or more properly the swindle bee business, or I am unable to understand what true "business" really is.

I am perfectly acquainted with the very best class of hybrids, and it has cost me heavily for two years past to get control of my breeding field. The best class of hybrids are about equal to the best pure stock as honey gatherers, but you just let them mix up and multiply and they will soon degenerate below the standard of any pure race with which I am acquainted.

The season here was unfavorable up to the 20th of May, since which time the prospects have brightened exceedingly. The white clover is abundant and yields profusely. There is some fatality however, in connection with the queen-rearing business up to this date. I have lost more young queens while out on their wedding tour than at any other time, or in all the time of my experience. I attribute it to the sudden showers of rain which have been so frequent of late. If I mistake in this conclusion I am perfectly at sea as to the true cause of my loss.

While removing the queen cells from a queen-rearing colony to-day, I found that several of the queens had hatched out; and, as the colony was strong the rest of the cells were protected by the bees and these young "misses" were crawling every which way, and I had the opportunity to see a ferocious combat between two "bloody-eyed" princesses. They were too fine to be wasted in that way however, and after watching them fight like expert veteran wrestlers as I held the comb in my hands, I concluded to separate them and put them at better business. I lifted them from the comb by the wings and proceeded to break their grip upon each other, which was not so easily done as one might imagine. They were most desperately savage.

Christiansburg, Ky.

THE SPIDER AS A COMB-PROTECTOR.[1]

By C. L. Colton.

To many readers of the "Bienenzeitung" it will be welcome and at all events interesting to learn of a new means of preserving our combs from the depredations of the moth during the winter.

It is about eight years since I began beekeeping and through the succeeding years, notwithstanding the pleasure afforded me by the harvests of honey and combs, I have experienced much trouble and vexation in the storing of my beautiful combs, for scarcely a year passed

[1] A free translation from the German of W. Eckhardt.

without the destruction of the greater portion of them by the moths.

I usually lay aside for storing, those combs in which brood has been raised but once or twice, and hang them up in my garret or in a large closet. The combs hung in the garret came through the better of the two, although a portion of them were always badly eaten, while those in the comb-closet were almost totally destroyed every time, although I repeatedly sulphured the closet.

Discouraged by these results, and resolving in the future, to take less care with my combs, I threw them into the drawer of an old folding-bed, shut it up, and troubled myself no more about them. In the following spring, wishing to provide a number of frames with foundation, I found, to my great astonishment, that not a single comb was injured and I could use them all.

In searching for the cause, I found a large fat spider, with a lot of young, that had spun its network into every nook and corner, and here and there were the remains of several moths. Since this important discovery, I have hung my combs in the closet as formerly, but before closing I get a number of spiders, eggs also when I can, and put them in with the combs.

From the time I commenced using spiders I have not had, to my great pleasure, a single moth-eaten comb; and I entreat all my colleagues to try this simple method of ridding themselves of the moths.

New York City.

HINTS CONCERNING NEEDED REFORMS.

By J. W. Tefft.

When I commenced beekeeping it was with the intention of making a success of it, and rendering it remunerative. This, however, I find to be quite a difficult task, as the honey market has been so injured by the beekeepers who, ignoring the first great principles of business, rush all of their honey into the hands of commission merchants, thereby depreciating the prices and ruining the markets.

Why it is that the beekeepers are so blind in this matter is incomprehensible. If they should ask their supply dealers to sell them goods on the same plan, they would be laughed at in return for their ignorance of the fundamental principles of business; and yet we go on willingly submitting to this evil, almost fearing to breathe one word against it.

Apiculture is no longer a small business represented by a few box-hive beekeepers, but has developed into an important industry, and one that should demand more study and consideration than it is at present favored with.

No industry or vocation, more than beekeeping, calls for the active employment of so many necessary qualifications, and, therefore, no other business appears to be so hazardous for the investment of capital. Every large apiary should have at its head, as manager, a man of knowledge, experience and decision; one who is keen

in observing the course of business, fertile in resources, quick to grasp details, and able systematically to organize and conduct an apiary.

The absence of such an one interferes seriously with success in a new enterprise, and not unfrequently ruins an old one, but there are so many successful apiarists scattered over our country, that the conclusion seems warranted that this enterprise collectively represents a vast body of intelligent, wide-awake courageous men, who are on the alert for any danger that threatens their interests, prompt to take defensive action and fearless in maintaining their rights. That this is the general estimate is shown by the denunciation of their enemies, who allude to them as greedy, grasping, unscrupulous apiarists who use the poor, small beekeepers as machines, and obtain through conventions and concentrated action the power to enforce their tyrannical rule.

In view of the important position which masters in bee culture now occupy, and of the qualities ascribed to them by those who would see them prosper, and those who seek to destroy them, it is an unpleasant duty to describe the characteristics of some of them, as they appear to me. While they are, when regarded collectively, able, shrewd, enterprising and even audacious in their business relations, yet at the same time they can at times be marvellously timid, irresolute and faint-hearted; and these undesirable qualities are shown quite prominently in the management of the disposal of their honey.

Time and time again, they permit themselves to be imposed upon, misrepresented in conventions, and scornfully treated by the commission men when it would be comparatively easy for them to secure ample justice, if not more courteous and considerate treatment, by simply maintaining a proper indignation and a disposition to resist aggression.

We see very plainly, whenever an enemy assails the interests of the beekeeping fraternity, instead of rising *en masse*, and with one accord demanding that their interests should not be slaughtered, the bee masters wait for one another to take the lead, and if one more bold and courageous than the rest chooses to make himself conspicuous, the others all devote themselves more closely to their business, and keep quiet for fearing to attract attention to themselves and receive a worse treatment.

As a rule, editors of bee journals ride over them freely and carelessly, because the enemies have found that most apiarists are afraid of appearing before the public in conventions in opposition to these enemies, and self-styled professors of apiculture. Honey producers send in delicately-worded petitions to committees, and trust to influence members by written appeals to their reason, while their opponents crowd the committee rooms and make the members feel that they will be held responsible if they do not please them.

When the young apiarists are attacked in conventions, the beekeepers do not unite in a body, and demand that the assertions be proven, thus making their accusers feel the power of their numbers, and to realize the magnitude of the cause, and wish they had not touched upon such vexatious and far-reaching questions; but they allow a few representative members to attend the conventions and very mildly and respectfully request that the important interests which have been attacked be defended.

If, perchance, there be an editor or correspondent of some bee-journal in the convention (and there always is) the young beekeepers who desire reform will too often remain quiet, fearing to have their names and motives abused and misrepresented through the press; or, if attacked, they will meekly and quietly submit to the insult, and when it gets too warm and their interests are in danger of being injured, instead of calling a mass meeting of beekeepers and demanding their rights, they will urge a compromise and agree to almost anything rather than prolong the agitation. This was done when the standard size of frame, wintering bees, and other important subjects came up for consideration, and the supply dealers and editors opposed the honey producers very strongly.

There have been prominent and noteworthy exceptions to this rule, but when one has been courageous and bold enough to brave the results, they have been set one side and their leadership ignored.

The apiarists complain among themselves, discuss the situation with one another, and mildly interview the magnates of the conventions, but they do not rise in their might, take action collectively and determine as a body to have justice done them. They are even afraid to write to our journals, and open a discussion on the subject, lest some terrible consequence should result or some condign punishment be visited upon them for their temerity.

The apiarists in other countries do not seem to be so timid and irresolute as our American brethren, who have gained the credit abroad for having such an enterprising and energetic spirit. In England, an apiarist demands a hearing from his opponents. If his appeals are not acceded to, he does not hesitate to complain so loudly that with so many of his neighbors who join with him in his demands, he is rewarded with proper attention and respectful consideration. The apiarists of this country are not conscious of their strength. This great American industry is a sleeping giant which needs to be aroused; so large has he grown that his presence is felt in every nation on the globe, but his own professed friends lop off his limbs in their endeavors to arrest his further growth. Subordinate officers in conventions snub the good-natured giant and the poor thing tamely submits to unjust decision without an audible murmur, and

when his enemies tread on his toes, and our industrial giant feels the most acute pain, he does not even arise then and give vent to his feelings by word or blow, but he suffers in silence, and patiently waits for the voluntary action of the offender.

The truth of the matter is that the beekeepers as a whole lack determination and resolution, and we need a thorough reform in our systems of associations. It all remains with the individual beekeepers; if they will look to their own interests and take hold the matter unitedly as one man, the work will be accomplished. Self-interest alone would prompt this, but future generations will bless those who at this time are true and devoted to the interests of apiculture in organizing associations, desseminating literature, and framing laws which shall benefit the largest number of the beekeepers.

Brother apiarists! let us stand shoulder to shoulder in bringing about the needed reform and establishing our associations, regulating the supply and demand for honey, and in fact, attending to all matters pertaining to apiculture.

There is much more that might be said in this connection, but I leave it for the present, hoping that the near future will reveal a reform that shall result in a successful and systematic organization of our beekeeping associations.

Collamer, N. Y.

EASY METHOD OF FINDING QUEENS.

By W. G. Phelps.

Some years ago, in "Gleanings," I noticed a wail of despair coming up from friend Martin of Hartford, N. Y., owing to the difficulty of finding the black queens when seeking to introduce the Italians in their place. I remember at the time it struck a sympathetic cord in my own breast, for as Shakespeare says, "A fellow-feeling makes us wondrous kind," and one who has searched for the little black ladyships in large colonies until his head swims can well appreciate the difficulty. With one or two colonies it becomes no great obstacle, but with a large apiary to italianize it is a different thing. Familiar as is the sight of a queen-bee, both black and Italian, after twelve years' handling, I confess to being in a dazed sort of condition after manipulating three or four colonies in search of black or native queens. Every year it so happens that I come into possession of a dozen or more stands of black bees, which required to be italianized. To look up the black queens, and escape falling into a condition akin to idiocy, I have hit upon the following very speedy and successful method of finding them. It may prove helpful to many of your readers. Upon the stand, from whose colonies you desire to find the queen, place an empty hive, before which incline a broad board. Now from the old hive placed just at

one side, lift each comb and shake the bees upon the broad board, placing the combs within the new hive. Do this with each of the combs, and watch the bees as they walk up the inclined board. It is next to impossible to miss her ladyship, and it is all done in one-tenth the time it takes to look for black queens in the old way. I have never missed finding a queen since adopting this method. Furthermore it imparts a positive stimulus to the old colony thus treated acting upon them much as if they had swarmed out, and been hived. One can find a dozen black queens in less time than it takes to look up three the old way, with no danger of being made cross-eyed as by the usual method. Of course there is little difficulty in finding Italian queens as they are not so shy, and form a more conspicuous object on the comb, hence no necessity for such a procedure.

Galena, Md., June 12, 1884.

DOES POLLEN CAUSE BEE-DIARRHŒA?

By J. E. Pond, Jr.

The advocates of the "pollen theory," make out a fair case for themselves, but they are met at the outset, by a few facts that militate directly against their idea. These facts are: first, pollen is a natural food of the honey-bee, and nature makes no mistakes; second, bees do live in confinement for protracted periods, using at the same time large quantities of pollen as food, without being troubled with bee-diarrhœa. It is not enough when setting out a cause of this disease, to say that certain colonies were supplied with sugar syrup alone, and were free from it, while others were not that fed on natural stores; we must go still further, and show that the presence of pollen in the hive is always followed by the disease, and that the disease never occurred when it was absent. Now what are the facts?

Friend Fradenburg says in Am. Bee Journal, June 11, "we want the proofs," and he proceeds to say in substance, "that fifty-nine living witnesses prove to him that pollen causes bee-diarrhœa." His proofs are, that certain colonies that had pollen in their hives had this disease, while others that were allowed sugar syrup alone showed no signs thereof. All this, however, proves nothing, except that in the instance he mentions, bee-diarrhœa followed the presence of pollen among the stores fed to the colony. *Per contra;* this last winter I packed nine colonies on their summer stands, allowing them all the pollen unused during the prior season; not one of these nine colonies showed a sign of diarrhœa, and as our editor well knows, from personal observation, were as strong as colonies are ever found just before fruit bloom, one of them gathering in fact, seventy-two lbs. of surplus honey in four days from apple bloom. I do not make this

statement as proof that pollen does not cause diarrhœa, but simply as an offset to the proof of friend Fradenburg.

Pure honey and pollen are the natural foods of the honey-bee. But we are told that eating pollen causes distension of the bowels to such an extent, that the bee is forced to void the fæces, and that this is diarrhœa. I do not believe it. Nature is ever in harmony with herself. Obey her laws and health is the result; break them and disease follows. The honey-bee is provided with the means of withstanding long terms of confinement, without its bowels becoming clogged or distended. When in its normal condition, it voids its fæces in a dry state, and no harm arises therefrom, whether honey, pollen, or sugar syrup is used as food. When, however, it partakes of impure food, such as fermented honey or pollen, then the bowels become slightly irritated, a watery secretion is formed in the endeavor of nature to get rid of the irritating substance, and bee-diarrhœa results. Imperfect ventilation will cause excess of moisture; excess of moisture will cause fermentation, and diarrhœa follows from eating fermented stores. Brother Heddon hit it pretty nearly right when he started the bacteria idea; if he had followed it up a little more closely, he would have been nearer the mark than he now is. Fermentation is bacteria; and taking that view of it, bacteria is the cause of bee-diarrhœa. A discussion of this question will bring out opinions and as a consequence, good results must follow.

I have added my mite to the cause; I may be wholly wrong, but if so, who is wholly right? One thing is sure, the disease, diarrhœa, is a certainty, and one we wish to prevent in the future, and we can only do so by giving it thought and study. Let us all then set ourselves to the task, and not "let up," until we know "sartin" that bee-diarrhœa is among the things that were.

Foxboro, Mass.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p.* 108, *Vol. II.*)

THE BODY-GUARD OF THE QUEEN.

That the queen has her special body-guard is well known and the evidence drawn is very conclusive; but it does not consist of the drones but of a number of bees provided with stings (or worker bees) which not only are constantly about her, but they also caress and always accompany her wherever she goes in the hive. She is indeed generally quite concealed in the innermost part of the hive, and one cannot often easily find her, especially when she is depositing eggs which takes place most of the morning until eleven o'clock. If she now comes to the light, she is surrounded continually by a circle of bees, her attendants, which caress her as do also the worker bees as she passes by them.

Indeed, this veneration goes so far that they lick the place and path on the glass or upon the combs over which the queen has travelled. On the other hand, the queen proves very loving towards her subjects, with whom she in passing often stops, unites her tongue with theirs, and altogether conducts herself so lovingly towards them that one must acknowledge it to be very wonderful even though he does not witness it himself, and this interesting fact furnishes to the inquiring mind of the student of Nature and lover of their Creator great pleasure.

THE ORGANIC STRUCTURE OF THE DRONES.

Another kind of bees, not to be found at all times of the year within the colony, are the drones, or humble bees, or, as they are called by some, brood[1] bees, because it was believed formerly that they had the care of the brood, but this is not so.

The head and thorax of the drones are much larger and stronger than those of the queen, and the abdomen of the latter is quite different in form from that of the drone which is more full and not nearly so long and pointed. They have a much rounder head than the other bees and no projecting teeth, as such, but they are short, flat and concealed, thus being distinctly defined from the teeth of the worker bees and of the queen. Their proboscis is also much shorter and finer, and their eyes are larger and much thicker. They cover the whole upper part of the head, forming a projection on either side. The three little eyes (ocellen) which stand out from the crown of the head are quite surrounded with brownish-red hairs. The antennæ are glossy black, quite smooth and without hairs, with a short basal joint whereupon are ten articulations. These are distinguished also upon the antennæ of the worker bee and the queens, which in the latter have a long basal joint that forms an elbow, whereon are to be found nine joints.

From under the jaws protrude two tufts of hairs which form two beards. On the fourth ring of the abdomen are long, abundant hairs, but the fifth and six rings are curved, slide under the others like the parts of the telescope, and form the blunt body. They have no sting and Nature that has done nothing in vain has created them defenceless, whereby at the time of the drone-battle when they are no longer useful in the colony, they may without loss be driven out by the worker bees and destroyed.

RELATION OF THE DRONES TO THE QUEENS.

The drones are held as husbands to the queens and make the eggs of the bee mother fruitful. I have never yet indeed had the good fortune to witness their copulation, but it has remained for other naturalists, especially von Reaumür and Mr. Reim to be eyewitnesses thereof, as well within as outside the hives, but the last but seldom

[1] Jacobi, a German author, in 1784, speaks of them as "hatching fathers," because they were always to be found in the vicinity of the combs filled with brood. — ED.]

happens. According to Reaumür's account, the queen during copulation mounts the back of the drone, and the latter parts thereupon with the organs of procreation. One may observe these organs and their structure if he presses the drones hard in the middle of the body. But the organ can no longer draw back because there are two saccules which, as it were, act like elastic springs, project, and prevent it from being drawn in. Therefore every one of the males or drones must die after copulation, and I have often found such drones dead in front of the hives, so to me the fact is made apparent.[2]

[2] The opinion that the drones copulate with the queen and render her fruitful, although not denied, is warmly contested by modern naturalists; yet it may be that the drones are the only males in the hive, and as well as possessing distinct generative organs, these also contain a large portion of spermatozoa.

Pastor Schirach, among others, found out, by minute and persevering investigation that young queens, confined in small boxes wherein were no drones, laid many fruitful eggs. The queen must then become fruitful without copulation. Moreover, the genital organs of the male do not appear to be proportioned to those of the queen, which already the great Swammerdam believed, who supposed the queen to be impregnated through scent of the drones; but in regard to which von Reaumur made the remark that it seemed to him that this lack of proportion of the genitals was not so great as appeared to Swammerdam. We mistake when we would estimate the magnitude of the genital organs of the male, as they appear if we press them out of the body. It can be shown in a moment how the organs of the male and female are proportioned as compared with each other, and I believe he is right, after I accidentally saw the queen in the act of laying her eggs outside the cells and saw the opening of the womb.

Thus we are slow to accept any newly discovered truth in physiology until it is confirmed. The ways of the author of nature are so marvellously diverse and the mystery of procreation so deeply hidden, that must be a very sound philosophy, very fully conceded that admits of not the slightest doubt.

But, by reason of this diminution, Nature has provided a sufficient number, which in a colony of 15,000 bees amount to 300, and in one of 30,000 bees from 700 to 1000 drones so that there will not be so great danger of the loss of the queen on her marriage flight. But that also, on the other hand, there may not be too many, and the queen in her seraglio of husbands go to ruin, the drone is by nature very sluggish and cold-blooded, and his amours must be invited by the loving caresses of the queen, and he continues to hold her in his embrace until he dies.

This superabundance of drones is

One generally finds concerning the production of the insects many extraordinary things in experience, which our certain knowledge of the ordinary ways of nature appears to contradict.

Whether now the queen is in herself a fountain of fruitfulness, or whether and how she is fecundated by the drones remains to us yet a mystery. Yet it is not impossible that they can become fruitful without copulation, because in nature we have entirely similar and convincing examples. Here are insects, which with and without copulation propagate, as the snails, and chiefly the plant-lice, concerning which Leuwenhoek, Cestoni, Bonnet and others, have made experiments and found that they have propagated to the tenth generation without copulation.

But the plant-lice, and indeed one and the same species, without copulation bear young; yet they also copulate and by means of the copulation also propagate. So I believe that these little animals, by a single copulation can become fruitful through many generations, and so may it be also with the mother bee. Indeed I believe almost surely that the bee mother carries over the fruitfulness which she has received through the male to her daughter, granddaughter and great granddaughter, and so on, that also the queen larva may become fruitful to ten, twenty generations, also fewer, and their future deposit of brood is fertilized without the help of the male.

But if the queen without copulation at any time should become fruitful, wherein exists the unknown purpose of the drone? For what has wise Nature provided so many drones with

not alone provided for the old queen in the colony, but also for the young queens, who might be reared to take the place of the old queen in case she should be lost.

Rodheim, Germany, July 25, 1783.

(*To be continued.*)

genital organs? It can be answered that truly our ideas differ greatly upon this point, and that the unknown purpose of the drone may perhaps consist in that whereof we know but little. The great quantity of whitish fluid, which the drones have in their spermatic vessels and which seminal fluid must not only possess a stimulative principle but also that which is reproductive, may not be abundant when the bees are most numerous. Who knows whether or not the males deposit the seminal fluid in the royal cells wherein already an egg or larva is present, and also the queen as well as the larva is impregnated? Who knows whether or not this seed, if it mingles with the royal jelly upon which it rests, renders it more efficacious and fits it for a more thorough development of the ovaries? Who knows whether or not, this seed, in quite another way, than we can as yet conjecture or discover, penetrates the larva itself?

But because we should not turn aside from the usual course which nature takes in physiology without sufficiently clear proof, as such usually the procreation of animals promotes through copulation (with the exception of those which as it were propagate through budding or division, for example, the polypes and Infusoria) so I believe that my previous extreme opinion may be the best; that, namely, the queen bee may transmit her fruitfulness received through a single or frequent copulation with one or many drones, to child and grandchild, as I have also said, the more because one already observes a clear copulation.

How much remains unrevealed to us however! What a whirlpool is a colony of bees in the eyes of the wise! What inscrutable wisdom is hidden within its depths! Who is the philosopher who dares to fathom it? Justly, says Bonnet, for stupid persons the bees form a very trifling subject; namely, those who do not know that in nature nothing is insignificant, and that a single fly exhausts all the conceptions of the greatest genius. The smallest insect is a world for the naturalist. But I believe, in the bees, many worlds are concentrated, through which we by our inquiries can only reach the outermost bounds.

EDITORIAL.

We esteem the privilege of coming before our beekeeping friends each month, through our editorial, as not only an honor, but one of the most pleasurable duties that we have to perform, and when we realize that every sentiment or thought to which we give utterance is carefully weighed by so large a number, and goes to influence others in their lives and actions, we are led to speak if possible only such thoughts as will not in after years come up before us with their results as a justly merited rebuke.

There is no study in the vast and wonderful realms of nature, except it be that of the study of man, that presents more food for the intellectual mind than does apiculture, and they who enter into this study, with souls thirsting after a knowledge of the laws and handiwork of the infinite Creator, must be lifted above all that is degrading and become better men and women; and we candidly believe that no man can be more independent than one who is adapted to the keeping of bees, who owns from five to ten acres of good land in a good locality for beekeeping, all paid for, with the addition perhaps of a cow, some poultry, etc. If such a man, blessed with good health, cannot live at peace with God and his neighbors, who can.

We wonder oftentimes how any man can associate himself with so grand and ennobling a study, and yet drown the higher and nobler

aspirations and inspirations for the sake of gain; and when we realize that the large majority of beekeepers are so dependent on the counsel and advice which come to them through our journals, from those who have had more experience, we realize the importance of the enterprise in which we have engaged.

In truth, if the mere accumulation of wealth were all or even the grand aim of life, then we might forget all else; but when we realize that upon each one of us there rests the duty of doing all in our power to elevate the standard of manhood and womanhood, and develop the talents inherent within us for the good of humanity, then we shall always have the approbation of the noble and better in society, and by and by will receive the just reward from the hands of the Creator.

Apiculture in every age and from the earliest history of man has received the attention of many of the world's greatest scholars and noblest men; and while many of the greatest and most valuable discoveries connected with apiculture have been due to the untiring and persistent research of some of the masters among European scientists, America has justly earned the proud title of the leading nation in practical bee culture.

It is a noteworthy fact that while many of our most successful apiarists and best teachers, those whose experience and studies have helped to give to the beekeeping fraternity much that is valuable and important, have been talented, but practical and unlettered men, yet a large proportion of the great discoveries in apiculture have been made by the scientific student. We might mention the names of Swammerdam, Bonnet, Huber, Dzierzon, Berlepsch, Schirach, Leuwenhoek, and a host of others, many of whom are living to-day.

It may be well to consider why this is so, and what lessons we may glean from it for our benefit. First, the true scientific man is one whose very soul hungers and thirsts for a knowledge of the Creator's handiwork, and the laws which govern it, and while the artisan, the farmer and the business man are engaged in utilizing the resources taken from mother earth and applying them to the wants of mankind, the true scientific student is energetically and untiringly devoting himself to bringing to light the hidden laws and truths of nature's vast storehouse, inaccessible to those who are uneducated. And, when we realize of how much worth and importance true science is to the world, we regret that the masses who reap the benefit of the labors of these men, seem so unwilling to aid in supporting such studies and extending such researches.

Agriculture as a study has received the attention of scholars, even from the earliest ages, and this because it holds so important a relation to the interests of man, and we find colleges and scientific laboratories devoted to the proper study and development of every study connected with agriculture;

but yet, while there are, say, from 200,000 to 250,000 beekeepers in the United States and Canadas, there is but one professor in any agricultural college in the United States who is an acknowledged teacher of scientific and practical apiculture, and it is claimed that even our associations and bee literature are devoted with but few exceptions almost solely to self-interest and self-aggrandizement, while the more important interests are neglected. It is our opinion, however, that apiculture like all other branches of that great industry agriculture, must develop slowly, and that each struggle among its most thoughtful, studious and devoted advocates, to establish some new truth or crush out some prominent error, tends to lift it one step higher, and that in spite of all the seeming apathy of the great giant to whom friend Tefft refers; still, when the time comes he *will* move, to the sorrow of the mere pygmies who cluster about him satisfied that they have him pinioned.

One thing that the beekeepers of America most need is an experimental apiary devoted wholly and solely to the scientific and practical investigation of apiculture, having connected with it a thoroughly arranged laboratory where scientific tests and experiments can be conducted, and if each beekeeper who "cares a fig" for his interests and the welfare of apiculture would contribute his mite, or if every such one would contribute one dollar per year as a subscription to the journal which shall work for the institution and establishment of such an apiary, the work would be done. And is it not strange that so many fail to see that it would pay the beekeepers many dollars each year if there was even one person whose time, talent and energy were devoted wholly to their interests?

We are fully aware that when one takes upon himself the task of instituting reforms, his every motive is questioned and misrepresented; and should he be unfortunate enough to become a self-appointed champion of justice and right, and attempt to bring to light, and expose fraud and deception, substituting therefor right and purity, he becomes a marked individual, and unless he is *man* enough to stand firm as a rock against the darts of policy, hatred and injustice, not only must death ensue but also the cause is injured. Nevertheless, never has a man come out nobly on the side of reform and maintained a dignified but bold and resolute front, but that even though his endeavors were apparently unfruitful, yet the cause which he loved and for which he labored is lifted nearer perfection, even though he go down to his resting place unhonored and crushed by his enemies. Events which are transpiring lead us to feel certain that in organizing the APICULTURIST we have made no mistake, and we hope and trust, through its mediumship and with the assistance of our readers, to carry out many

plans which will tend to elevate apiculture and benefit each individual beekeeper.

We do not wish to carry on any individual or personal war. No! our aspirations are higher than that and we war with the great principles of wrong. True, there are those who are adherents and devotees of error and wrong; and if, in the institution of reforms, they are injured by the crumbling débris of their own structures, it is far more wise for them to join with us in correcting the errors, than to hurl bitter retorts and sarcasm upon our devoted heads.

Once more, as in the past, we appeal to you our readers, who represent the interests of apiculture, to put your shoulders to the wheel and if you consider that we are in the right, render us all the assistance in your power.

If every one would send us one other subscriber it would aid us wonderfully in our work, and enable us to devote more time and attention to experiment and study; while on your part it would be only a little labor and a kindly act, which would return you an hundred-fold. If the APICULTURIST is not what you think it should be, to represent properly the interests of the beekeepers, then criticise our course. Remember that the columns are open to the free and manly expression of the ideas and interests of every individual beekeeper, and although you may not be a scholar, yet whatever items you may choose to send us will be thankfully received; and further, do not fear to criticise any statement that we may make, as your opinions fairly expressed have the same right to appear in the APICULTURIST as do ours, the opinion of some to the contrary. Remember that no individual or party of individuals or associations hold any control over the APICULTURIST, nor will they ever so long as we are fortunate enough to sit in the editorial chair.

We are happy to say, however, that as yet no individual or party of individuals have tried to bring the "APICULTURIST" under their control. This gives evidence that even our enemies honor and respect the course that it has taken.

EXCHANGES.

COÖPERATION IN BEE CULTURE BY J. Y. DETWILER, ESQ.—"One of the best illustrations of coöperative effort, is plainly shown in the economy of the hive. A single bee of itself is powerless to accomplish but a very small amount of labor, however industrious it may be, but when assisted by the vast throng of workers composing a colony, we well know the result of their united efforts, both in storing honey, and in defence of the hive.

We, as a fraternity of beekeepers, can learn useful lessons from our bees. To them, not a few of us, look for many of the necessaries of life, procured by the sale of delicious honey, the result of the persistent labors of thousands of tiny insects banded together in one common cause. If the instinct of the bee teaches it that in "union there is strength," may not we, who are

endowed by an all-wise Creator with reason to govern our actions, profit by the example set forth by the busy workers?

In the production of comb and extracted honey, and in the various manipulations of the hive, it is convenient, and often necessary, to profit by the experience of others.

We at present know of no better method than the interchange of thought through the medium of bee-publications. As a rule, it is only those who desire to advance in their chosen pursuit who deem it necessary to patronize the bee-publications, and in proportion to the interest taken in any occupation, so is the amount invested in reading matter pertaining thereto. . . . .

Fellow beekeepers! let us unite our efforts and sustain the journal, wherein the most humble advocate of the beekeeping interests can have a hearing or make a complaint if unfairly dealt with; a journal which is the organ of the beekeepers and *not* of rings in conventions or individuals and we shall have a medium for the exchange of thought and experiences; an organ which will be extracted from, and looked to for statistics in relation to apiculture from all other papers and periodicals in the country, with a competent corps of assistant editors throughout the land, and special correspondents in every large city and town whose duty would be to report monthly the exact buying and selling prices of both extracted and comb honey in their respective localities. We should then know *exactly* the state of the honey market at all times and places, and in the same manner we could be able to ascertain the correct amount of honey produced, or bees kept in all parts of the country. The advantages arising from the possession of a coöperative bee-journal are innumerable compared to some we have at present. The intelligent beekeeper should patronize the paper which is of most value to the fraternity at large, apiculture will advance under those conditions and the continuance of bee-papers will be simply a case of the "survival of the fittest."

. . . . . .

Beekeepers! Is not our pursuit of enough importance to justify us in supporting such a journal as I have described? Many of us are farmers, mechanics and professional men and are all able to contribute something to the common fund of information, and should be more free to express our ideas. Let us each contribute according to his means in this matter. . . . .

The Beekeeper's Magazine.

CORRESPONDENCE.

Ed of Am. Apiculturist:

Dear Sir,

Please excuse me if I trespass on a portion of your time by asking your opinion in regard to putting bees away in winter quarters, on their summer stands. And first, is it as natural for bees to look for their stores, by going from comb to comb and from side to side in the brood chamber, as it is for them to form a cluster, and keep going up to look for food? and is it not naturally warmer above the cluster? If it is, a receptacle of some kind that would hold the same sized frame placed over them would make the bees happy. The reason for my wishing more light on the subject, is this: last fall I packed seven swarms on their summer stands, four chaff Eclectic, and three Simplicity hives. I took pains to pack them so they would be warm inside, with dry saw dust a year old on side, and

chaff on top, and outside with a tight shed and slant roof packed with straw, good entrance from hives to front of shed.

This spring, when I first examined them, I found one swarm alive, and all right, the rest had starved in a land of plenty, for there was honey enough in five of the six to have carried them through. But the bees were on one side of the hive and the stores were on the other, with a Hill's device on the top of frames to give them easy access to all the frames. Now, why did they starve with honey in their hive? Of twenty-five colonies lost so far this winter in this place, there were half a dozen different methods used to winter them, from my way of packing to leaving them on their summer stands, with no packing except a big stone on top; and two-thirds report finding their bees clustered on side dead, with more or less honey on the other side, but they never got there! Why is it? Now I want to know!

A hive that will allow bees easy access to their stores is the kind of a hive I want; and if bees have a desire to go up, instead of sidewise, why is n't that Ideal hive that Mr. J. W. Tefft had on exhibition at the Convention at Syracuse, N. Y., about right? He says he has improved it since, in several respects, by making it a "double header" for a reversible frame, as well as a hanging frame; can use either one, or both, at the same time, as they are of the same size. He says he crowds his bees down to seven frames in the brood chamber, with division boards, puts his super on, and fills it with six frames of honey, and by using his reversible frame in the super, can place the honey that would naturally, in a hanging frame be at the top, directly over the brood nest, so that the bees can eat and follow it up without breaking the cluster entirely.

Then what an opportunity to pack them! Fill in all around them with cut straw or pine shavings, clear to the top of super, and with a cushion on top of that, they ought to hold the fort. If one does not want frames of honey in, fix his super to hold a cushion half way down, and what a neat place in which to put a stimulative bee feeder. Lots of room and warm. If any one has a better hive, I wish I knew who it was; I would visit him this summer and see it. His reversible section holder, or wide frame, works to a charm, and if simplicity is all that is needed, it can't be beaten, no tip over and no bracing them up. Well, I must beg you to excuse this, and if you can give me any light on the subject, do so, and oblige,

J. D. WANDS.

Friend Wands has asked several questions in the above, which are important and call for answers. Those who have carefully studied the natural habits of the bees are well aware that the combs in the tree or box hive are seldom regular, nor are they so built that, in cold weather, it is hard to move from one portion of the hive to the other; on the contrary, we find upon examining almost any old box hive in which the bees have been permitted to build their combs to their own liking, that they are very crooked and irregular, and in such a way that the bees may cluster in a compact body, and when necessary move about from one portion of the hive to the other without breaking the cluster. Now, while it is impossible for us to follow the bees exactly in this regard, yet oftentimes we fail to draw from these facts all the lessons that we might.

In order to winter our bees

successfully, we should begin preparations just as soon as the surplus honey has been removed in the fall, and the less that the bees are disturbed after that, the better. How often, in examining colonies that have been packed for winter, we find a small shivering cluster in the centre of the brood nest, with a cold and chilling air space all about them, just like one trying to warm himself by the heat of a kerosene lamp in a large room. The brood chamber must be compact, no matter what the size or style of frame, and if the brood-chamber is adapted to the size of the colony, the combs filled with good sealed honey, or *pure* sugar syrup, and the brood chamber well packed with chaff, the hive kept up from the ground a few inches, there will be but little trouble. There should be a space above the frames of say one-half to three-fourths of an inch to provide a passage way for the bees over the frames. Bees seldom die until near the breaking up of winter, or the opening of spring, and at this time it is quite easy to place a stimulative feeder over the cluster in such a way that the bees can reach the food without breaking the cluster. We think oftentimes that far too much honey is left in the hives over winter. We prefer to give the bees just what combs they can cover, and supply them with what honey they need toward spring. This seems to have been the trouble with friend Wands' bees, too much space in brood chamber, and not warm enough. The hive to which he refers contains many valuable and important features. We have just received one of them from Mr. Tefft of Collamer, New York, and his reversible brood and section frames are first-class; we merely refer to them here, but will report after we have given the hive a thorough trial. We can say, however, that the principle is a simple and practical one, and if the reversing of the frames proves advantageous and practical, then friend Tefft's frames will prove worthy of adoption.—Ed.]

Ed. of the Am. Apiculturist:

Dear Sir,

We are now having the second honey flow, viz., from the sweet bay and saw palmetto. The hives are full and the "extractor" (?) busy with some, while with others, including "yours, etc.," the bees are building combs and extracting foundation sheets to be in readiness for the full blast of the mangrove two weeks hence. Honey taken out now is dark and more rank than later, when it is white and clear like sea water. The past winter was very serious among our large apiaries, some parties losing from thirty to fifty colonies in wintering and heavy feeding was resorted to, to save the balance; one neighbor told me this week he only had three natural swarms out of one hundred colonies this past spring; but colonies are building up fast now, which I fear may bring swarming in the midst of the main honey flow, when we usually have it out of the way and all energies bent on storing, instead of "house moving." I therefore, "brush swarm" my strongest ones twenty-one days before I expect the main honey flow, but I did not know until the Journal came last week that any one else had ever used the same method. I give one comb of honey in addition to Brother Stachelhausen in case of a few days bad weather, etc. Now just one word "scientifically" in regard to the bee, honey, or wax moth whose larvæ

prey upon our combs. I claim that their natural food is the cocoons of the bee larvæ; and clean-wax combs, without cocoons or pollen, will not be disturbed except through contiguity. The larvæ will grow upon the sediment of a cake of wax, but are of "Pharoah's lean kine," and it is the same on clean section honey, but that they cannot attain to that grand length and rotund proportions admired by the wrens, without a good penning upon combs containing layer after layer of cocoons. I jot this down while resting in the apiary; it is not intended for publication, but do as you please. I admire and uphold your course in regard to supplies, etc. Science and art are one, and making and selling books and conveniences, therefore, is another thing and should be a distinct department.

A. J. Goodwin, M. D.

New Smyrna, Fla., May 12, 1884.

Ed. of Am. Apiculturist:

Dear Sir,

There are many reasons why bee culture should and will become an important branch of industry in the south and among others we may set down the following.

1. The changed condition of the south to perfect free labor causes the minds of men to be directed to all branches of industry where science, study and skill enter as ingredients; and as bee culture, notwithstanding any temporary depression in the price of its products, is bound to grow as a national industry, so it will in the same proportion increase in importance in the south. While the reports show very large yields from different localities in the south, we do not contend for any superiority of the south in quantity and especially in quality of honey produced. Still the honey yield in any locality yet heard from is sufficient to be profitable; and there are many decided advantages such as the following.

2. The certainty and safety of wintering bees out-of-doors. All that is required is a good rain-proof hive with a moderate amount of stores. Wintering out-of-doors and early gathering of pollen prevent spring dwindling and foul brood and other consequences of close confinement and long winters. I have never known foul brood or spring dwindling, or any other disease. Moths are destructive with black bees, but pure Italians are proof against their ravages. A good stand of Italian bees becomes almost as permanent as a piece of real estate with a sure promise of a big rent and large increase every year.

3. Inasmuch as hives do not have to be moved for wintering, a skilful apiarist, who has reduced his business to a perfect system, so as to have swarming under control and has brought to the minimum the work of his own hands or those of his employés, leaving as much work as possible to "cheap Italian labor," can extend beekeeping very largely, adding apiary to apiary in different localities within range. This has long been a prominent thought with me to adopt and develop a hive and system that would enable me to establish a number of apiaries under competent managers. It is much easier to procure the bees than to have them managed properly and it takes much time and patience to accomplish large results.

4. I will add another advantage of the south and that is in regard to queen rearing. Drones fly with me without any stimulation about March 20, each year. Hence I can commence to rear queens for sale

early in March. I can also rear queens late in the season and thus have my apiary well stocked with fine tested queens not over seven months old, to be sold to customers the next spring. I believe our climate improves the color of Italian bees, and wintering out-of-doors is certainly highly conducive to the hardiness and vigor of the bees and queens. Cessation from laying and brood rearing is not so prolonged and the atmosphere that surrounds them is not stifling or unnatural at any time. The purchaser from a southern apiary may be certain that foul brood or any other disease is not conveyed along with the queen or bees to spread its deadly poison. But I will cease my enumeration of advantages for we are far behind our opportunities, lacking the keen intelligence, the universal energy and the homogeneous population necessary to make scientific bee culture a common pursuit.

OSCAR F. BLEDSOE.

Grenada, Miss., May 26, 1884.

BOOK NOTICES AND REVIEWS.

"Dictionary of Practical Apiculture" by John Phin.—

We are very greatly pleased with this admirable little work. It is a fit companion of that valuable volume "How to Use the Microscope" by the same author. The work shows great labor and pains. Not only are all the dictionaries and lexicons consulted but the work shows intimate knowledge of all the old bee-books from that of Markham of 1610 down to those just from the press.

The book gives a very full list of terms used in apiculture, and its criticisms on improper terms are most excellent. It shows the absurdity of such terms as metal rabbets, which are really no rabbets at all, but only supports. The use of the words "hatch" referring to emergence of the imago, and of the word "fertilize" in place of "fecundate" and of "drone eggs," etc., are all very justly condemned. We can hardly conceive how the work could have been better done. In quite a close reading we have yet to find a criticism in the work to which we take exception.

A. J. COOK.

Prof. A. J. Cook gives such a fair and just criticism of Mr. Phin's work that we take great pleasure in giving it to our readers and endorsing it so far as we have examined it.

We are pleased to note the description of "glucose" as given by Mr. Phin. It is timely and well put; indeed we heartily endorse what he says, and warn our readers to beware of anyone who will either advocate or endorse its use by beekeepers, as such an one cannot have the interests of beekeepers at heart.

The price of Mr. Phin's work was wrongfully given in his advertisement in our June number; it should be 50 cents instead of $1.00. We advise our readers to procure and study the work carefully as it will prove not only interesting but instructive.

NOTES AND QUERIES.

We do not think that we are asking too much of our readers in urging them to send us at least one new subscriber. We desire to make the "Api," if possible, still more interesting as each month passes, and to do this we must have more subscriptions. We are willing to do our part and more if possible and we feel assured that

our readers will try and help us all that they can.

It is generally conceded that young queens lay only worker eggs and that a number of months must elapse after copulation, ere they begin to deposit drone eggs, but Mr. Alley claims that he can compel a young queen, within a few hours after first beginning to lay, to deposit drone eggs in a piece of comb placed in any desired part of the brood chamber. To do this he takes bees that have just completed a lot of cells. We presume that such bees realize the need of drones and the queen acts in sympathy with their wishes. Perhaps as this last is but a presumption of mine it may either bring forth other presumptions or be passed by as of no value; but we have not yet mastered economy of the bee republic and many new and valuable discoveries will probably be made.

One of our subscribers who lost a large percentage of his colonies during the past winter states, that "he extracted from the brood combs too closely so that the bees had to fill them for their winter stores with fall honey, which, not having time to ripen before cold weather commenced, soured and brought on the so-called dysentery;" hence his loss. He further says, "Warn your subscribers against injudicious extracting from the brood combs. My advice to *most* beekeepers in regard to extracting from the brood nest would be don't! don't!! don't!!!" The caution of our brother is worthy of notice and consideration. The extractor never should be used extensively excepting by those who understand how to use it. No apiarist who hopes to make a lucrative business of beekeeping will be without an extractor, but our advice is, "go slow," and experiment with a few colonies until "practice has made perfect." We believe that it is now generally conceded that fall honey is a poor winter food for bees.

We have just received a pamphlet entitled "To Honey Shippers," issued by Mr. Jerome Twichell of Kansas City, Mo. His directions regarding shipping honey are worthy of consideration and we take pleasure in giving some extracts from them. He says, "It is a great mistake to suppose that every pound of honey, in the comb, regardless of kind, color or condition, should be saved and shipped to the market, because it is for beauty more than anything else that comb honey obtains a preference; so it is only the whitest and prettiest combs that will sell to advantage and no dark, imperfect or broken combs should be allowed to go in. There is always a fair demand for dark extracted honey and almost none at all for dark comb honey, and on the contrary the demand is comparatively small for white extracted, while it is almost unlimited for white comb." Regarding packages for extracted honey he recommends good well-waxed barrels or kegs with gross and tare weight always marked plainly upon them, and says, "I have issued a circular affidavit of the absolute purity of all honey I sell, offering a reward of $100.00 to any one detecting and proving adulteration in any honey sold by me, and I will charge said sum to the person shipping such adulterated honey to me. It is only with this express understanding that I will receive consignments or direct purchases from any one."[1]

[1] This is a good point, and we wish that all commission merchants, who would not do so willingly, were compelled to publish and stand by such an affidavit. The great trouble from adulteration, however, originated, we think, with the dealer, and not with the beekeeper.

The example set by Mr. Twichell is worthy of general adoption. ED.]

Regarding "size and kind of section box to use," he says, "Two-pound sections will be somewhat the favorite, though there will be a good demand for one pounds too. Half pounds will hardly bring the difference in cost to the apiarist. I would suggest the following proportions, viz.: two pounds, sixty per cent.; one pound, thirty per cent., and half pounds, ten per cent. Nothing larger than two pounds should be shipped at all. Section boxes should be *very rigid* at the corners, so that *they* will support the comb and not requiring the comb to support *them;* light as possible and perfectly clean and smooth.

For immediate home trade, glass is not necessary, or for one-half pound sections; but where the honey is to be shipped and for all other sizes glass is almost absolutely necessary for the safety of shipping and to keep the honey from leaking and looking bad." As to kind and size of crates he says, "These should be made of clean, smooth, white lumber, light and yet strong and rigid. They should contain always twelve two pound sections: twenty-four one pounds or twenty-four half-pounds, Never put two sizes, though, in one crate. Everything depends on the *appearance* of comb honey, even though the flavor may be nothing extra, but in my experience all white honey has a good flavor.

Ship always in as large lots as possible, as the damage is always smaller in proportion in large lots, and where neighbors can make up a carload among them to ship to one point it will be all the better both as to safety and expense.

For a shipping mark use a small stencil on the same end with the weight. Put nothing else whatever on the crate *as it only has to be scratched off* and spoils the looks of it."

[It is our fault that the words in the last sentence are italicized and the reason is this. It is our candid opinion that every apiarist, who has a reputation to establish, has a right, and a just one, to place his stamp upon one end of his crates of honey in such a way that it *shall not* be erased. We say this not in order to disagree with Mr. Twichell or others but because we believe that, in the past, New York honey has been taken by commission merchants and sold for California honey, and that the reputation of the California honey was largely built up by such proceedings and we think it due the beekeepers who take great pains with their crops that they retain the use of one end of all honey crates for their own stamp. Perhaps our opinion on this point is faulty, and we invite criticism in order to arrive at some means for regulating the relations between the producer and the consumer. ED.]

QUESTIONS AND ANSWERS.

QUESTIONS BY THE EDITOR.

1. What is the condition of your colonies at the present time as compared with a corresponding date last season?

2. From what you know at present, what do you consider the outlook to be regarding the honey crop and the market for the same?

3. What means, if any, do you use to secure early drones and to keep them from being destroyed during cold snaps or scarcities?

4. When you have colonies supplied with sections, and they get the swarming fever "awful bad," have you any means whereby you can bring them under subjection and yet keep them at work in the sections? If so, will you kindly explain it?

5. Have you ever suspected that after a queen had once taken a marriage flight, she again meets the drone as she issues with a swarm of bees? If so,

will you give us your views regarding this matter?

6. Would you advise beekeepers to purchase what queens they need, or to rear them; and what would you suggest as the simplest and best method of rearing queens where one wishes to rear only a few?

ANSWERS BY J. E. POND, JR.

1. My colonies are fully as strong at the present time, as at any previous season. I do not think they are any stronger than at last season. Although this season has been colder and more rainy than usual, brood-rearing has been well kept up. One colony gave me seventy-two lbs. of extracted honey from apple bloom, and others quite a considerable amount also.

2. The outlook for the honey crop is favorable in my own vicinity. The main stay is white clover, and the rainy reason of early spring will have a tendency, unless very dry weather ensues in late June, to give a large crop. I market my honey at home, and have always found a ready sale for all I have, at remunerative prices. So far as the general market is concerned, I know nothing of it, for the reason given above.

3. I feed regularly whenever the natural flow of honey slackens, and thus keep brood-rearing in progress. If I desire early drones, I put drone comb in centre of brood chamber, which, with regular feeding, has a tendency to deceive the bees into thinking the natural flow of honey has not at all diminished. My rule is to keep all colonies strong, and I have found that regular feeding during times of scarcity will bring about such results.

4. I have not. The most I do is to draw on them for frames of brood, replacing with frames of empty comb or foundation. This will sometimes work well; at other times does not seem to have any effect at all. I have tried caging the queen on a full sheet of empty comb; this of course will prevent her leaving with a swarm, but at times I have found queen cells started. I have also tried confining the queen to the hive by contracting the entrance, but having lost one or two nice queens by the bees killing them while thus confined, I do so no more.

5. I have known queens to make excursions from the hive during the summer, and returning again, but I have no direct evidence of a second mating. I have one queen now, that produced all last season as fine three banded queens as I ever saw, that this season shows plenty of hybrids among her progeny. This, among other reasons, has caused me to conclude that queens do sometimes mate a second time, after having once been fecundated successfully.

6. My advice is for all beekeepers to learn to rear queens, in order that they may be prepared for all emergencies. I would advise, however, that small beekeepers purchase their queens, rather than raise them, as a matter of economy. I think the simplest and best method of rearing queens will be better learned from "Alley's Handy Book for Beekeepers," than from such directions as can be given in the limited space that can be devoted to this answer.

ANSWERS BY G. W. DEMAREE.

1. My apiary, as pertains to working strength, is ten days behind a corresponding date of last season. But the season is also behind.

2. The white clover is yielding profusely when the weather is favorable, but excessive rainfall casts a shadow of doubt over the future. Judging from the increasing demand for honey in my home market, the prospects are fair for ready sales at remunerating prices.

3. My method for obtaining early drones is as follows: I select the colonies which I wish to produce drones, and insert a comb containing drone cells in the centre of the brood nest, *i. e.*, in the centre of that part of the brood nest where the most brood is located. It is best to have the patch of drone cells entirely surrounded by worker cells, as I think the queens are tempted to lay in the drone cells, by having them surrounded with worker brood. By this management, I had some queens mated very early the present season. It will not do to trust to just one single colony to rear drones; the queen may fail to respond to your wish. It is best to prepare several in that way to be sure of success.

4. The only method I know of is to submit to reasonable increase, and

throw the honey storing strength into the new hives, and if you do not want increase and will not have it, you may keep the old colony queenless, and unite the young bees with the new colony as fast as they hatch, till the old colony is exhausted and nothing is left but the combs. Empty combs are never a drug in an apiary. Colonies can generally be kept quietly at work by giving them plenty of room at the right time, and all the time.

5. I have known queens to take the male the second time, or at least seen evidence that looked that way, and indeed would it not be strange if the queen honey bee was an exception in this respect? But I do not admit for a moment that any queen was ever fecundated the second time by the male.

6. Queens at present prices are produced at a small margin of profit, even by those who are best prepared for rearing them. Hence the honey producer can make it profitable to buy them. Mr. Poppleton, of Ills., told the writer at the national convention in 1881, that it paid him to buy untested queens at *dozen rates* rather than to rear them, even though he used them but for one season. Mr. P. produces extracted honey as a specialty. A few queens can be reared the cheapest.

ANSWERS BY PROF. A. J. COOK.

1. Season has been cold and dry. Don't think bees are up to the general average in strength.

2. Cannot judge so early.

3. Stimulate, add brood, and so get the colony very strong and crowded in bees.

4. Yes. Hive one colony in new hive on foundation, and put on sections at once. Hive second swarm in hive from which first colony swarmed, after first destroying or removing all queen cells. Third colony in hive from which No. 2 went, etc. This change of home and position almost always satisfies.

5. I have watched carefully, and do not think the queen mates after she is successfully fecundated.

6. I think better to rear if time will permit. The old nucleus system described in the books is a good way.

ANSWERS BY L. C. ROOT.

1. About the same.

2. With us most honey-yielding plants wintered well, and the basswood is budding very profusely.

I am anticipating a good yield of honey. Of course we can never be *certain* in regard to it, but if we are to be successful we must feel sure enough of it to be prompt in all of our operations, and be in readiness when it does come. Promptness to the hour is the beekeeper's motto.

3. The stock from which I desire to rear drones must be very populous. If necessary, I unite two or even more; after furnishing a sufficient amount of drone comb, I feed them liberally. An old queen will deposit drone eggs most readily. I usually use such queens, as they are most fully tested.

If such stocks are liberally supplied with food during all scarcities of honey there will be little danger of their destroying their drones until the fall. At that season if I desire to hold the drones, I keep the stocks queenless. I supply them with brood from other stocks, and keep them building queen cells, as I may desire to use them.

4. I find no more satisfactory method when stocks are determined to swarm, than to remove the boxes and use the extractor, supplying them with a liberal number of empty combs.

5. No. All my observations have led me to believe they do not.

6. The average inexperienced beekeeper would do best to purchase his queens of some reliable dealer. Those of experience would find it more desirable to rear their own. The cells should be started in full stocks, and hatched in nucleus, formed in hives and frames used in the general management.

LETTER BOX.

Rutherford, N. J.

ED. OF THE AM. APICULTURIST:

I FEEL as if I wanted to have a little crow over my first experience in beekeeping, before some unlucky *contretemps* shall occur to offset all my good luck. I purchased one hive of Italians a year ago, being then as wholly without practical experience

of bees as any man can be who knows a honey-bee from a bumble-bee, and has read something of their habits. I received them very late in May, after all the fruit blossoms were gone, and the honey yield was not very good in this part of the country. We had enough for ourselves, and a few pounds to sell, but no very great quantity. The winter was a very hard one here for bees—one man not far from me lost forty-eight swarms out of fifty—but mine wintered splendidly. On the first day of May, they threw off a large swarm, but one could almost fancy they *knew* I had no hive ready for them for they returned home in about an hour, only to come out stronger next day, when I was prepared for them. On the 11th, I got another large swarm, and on the 12th and 13th smaller ones, which latter I united with some weaker colonies, which I bought this spring. I bought two swarms of Italians, and two of hybrids, all of which are working nobly, but none of them equal to the two from my own hive. The swarm of May 2 has filled all the brood combs, and nearly filled one case of surplus boxes, while the one of May 11 is but little behind it. The original colony remains very large, but not quite so *energetic* as the new ones. I think, with an extractor, I could secure at least one hundred pounds of honey from my seven hives, and the white clover season is but just beginning. I have so little time to spare for them from my other business, that it seems more profitable to me to work for comb honey, than for extracted. Now, for this late cold spring, and in benighted New Jersey, do not you think I may *crow?* I wish some other perfect novice would give me his experience, and see if it beats mine. "Crow, brothers, crow," and let us find out who is making the best beginning.

We take your magazine in the family and like it better than any other we have seen.

E. A. Fletcher.

Santa Domingo City, W. I., May, 1884.

Dear Sir,

As I am a subscriber of yours, and wish to make known my sentiments towards your monthly, "The American Apiculturist," I beg leave to repeat the very same style of expression, which you have quoted in this month's number, and taken from Mr. G. H. Knickerbocker's (of Pine Plains, New York) circular, by stating that "The American Apiculturist" should be in the hands of every beekeeper in the West India Islands and in fact all over the world, where beekeepers are acquainted with, and can read, the English language, and *especially so,* among beginners, who must certainly profit a great deal from the "questions" put by you, and others, as also by the answers from so many reliable sources, which alone are worth the year's subscription, not mentioning the great many good, reliable articles otherwise found in each number, put forward by the very best and practical beekeepers of "America;" especially as we can all clearly see that your chief object in view is the welfare of apiculture in all its branches. I therefore, for one, sincerely trust that you will be generally supported in your task, by the beekeeping world, and that your endeavors to put before us the best beelore will be crowned with success, and you justly rewarded. I shall soon be sending you a report from these apiaries, in which I shall give you a few hints on beekeeping in the West Indies.

Lorenzo I. dé Sóbóther.
"La Fe" and "La Esperanza" Apiaries.

Welborn, Fla., June 2.

Your card was received May 30, and your "Apiculturists" for Feb., March, April and May, came to hand next evening. Have only had time to read proceedings of the Northeastern Beekeepers' Association, and think your report of the same worth the price of your paper.

Yours truly,

S. S. White.

Orangeville, June 11, 1884.

Friend Locke:

Bees have commenced on white clover in good earnest, and clover looks better than it has for two or three years; the bees have wintered better the past winter than they have for several years.

May the "Api" ever prosper!

There are several articles in the June number that are worth more than the price of the Journal for a whole year.

W. J. Apthorp.

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

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A QUESTION.

BY J. E. POND, JR.

I OFTEN read in the bee journals, and in articles in regard to bee-keeping in agricultural papers, a statement something like this, viz.: "The Langstroth hive is one of the best possible with which to obtain surplus honey, but for wintering it is too shallow," etc., etc. Now what I wish to ask is, why is a frame 9½ inches deep too shallow to winter a colony of bees safely? I ask the question in all fairness, and for the purpose of calling out a scientific reason on the subject. It is not a fanciful theory that will satisfy me, but a plain, simple answer, based on scientific principles. If it is too shallow for wintering purposes, a scientific reason can be given, and when given will, in all probability, satisfy the larger proportion of those who now use it. If a scientific reason cannot be given, we must conclude that the idea held out as to the wintering qualities of a 9½ inch frame is based on prejudice, and consequently of no possible value. In my tests in regard to the wintering qualities of various frames, I have had occasion to measure the diameters of many colonies, and I have found that the largest I have ever seen will contract to less than 8 inches, both in depth and width, and this, too, under the most favorable conditions in which they could be placed. My tests have been made for the purpose of determining for myself, just what size of frame, all things taken into consideration, would prove the best. The result of my test convinces me that so far as wintering alone is taken into account, a hive about 10 inches long, wide and deep, properly protected so as to keep an equable temperature, would be the best form and size, that could be devised; but of course a hive of these dimensions could not contain a sufficient amount of stores for the colony to subsist upon, and we must compromise the matter. My idea of a perfect hive for general purposes is, that it must be a compromise between several points, and the real question at issue among apiarists is, What are the form and size

that will make the best compromise? We want a single hive only; we want it for summer and winter use; for uniting and dividing colonies for rearing queens and for wintering; all these are not only needed, but absolutely required, and actually seem to be best subserved by a frame about 9½ inches in depth. Now, I ask again, why will not a frame of this depth winter our bees safely?

Foxboro, Mass., July, 1884.

IMPORTANCE OF GOOD QUEENS.

By L. C. Root.

The question in regard to queens in July No. of the journal is one of too much importance to be answered in "Question and Answer" department, as the limited space would not admit. When you ask how and by whom queens should be reared, you have asked a question which should command the attention of every beekeeper in the world, for it is one of extreme interest. Every thoughtful beekeeper should keep these two words, "better queens," constantly before him — for upon this will largely depend his success.

I am aware that I shall find some opposition to the position I shall take in the matter. My first statement is that the manner in which the queen-rearing of the past has been conducted has largely been a hinderance rather than a help to our calling. The great effort has seemed to tend towards cheaper and not better queens.

It is a fact to be regretted that our bee journals almost without exception are encouraging and sustaining the cheap queen traffic in its most extreme form by dealing so largely in this class of queens.

If there can be a man found who has money enough so that he can rear *good* queens for the very low prices at which they are sold, I have certainly no objection to his doing so; but there is one thing that I *do* know from experience, and that is, if it is to be conducted as a paying business, we are to have no great advance in the quality of our queens, so long as they are furnished to us at one dollar each by dealers who do not breed them for themselves, but who secure them from breeders at from $50 to $70 per hundred. If you look for your queens from such sources, I say emphatically to beekeepers everywhere, rear your own queens.

That there are advantages in rearing our own queens no person will deny. If you desire to introduce a queen to a full stock under most favorable circumstances, how could it be done more satisfactorily than to take her from a nucleus in one's own yard. Those who have received queens largely by mail or express well know that they are liable to be injured by shipment.

That there are many advantages to be gained where queens are reared by specialists, I am fully aware. If a man like Mr. Alley, who has had twenty and more

years' experience in rearing queens, could not rear better queens than the beginner, it would be an exception to a rule which applies to a certainty to all other pursuits.

What I urge is that our queens be secured where they can be reared under most favorable circumstances. Whether reared by ourselves, or secured from those who make a specialty of rearing them, let our aim be better, rather than cheaper, queens.

Mohawk, N. Y., July 15, 1884.

OUR PRESENT SITUATION.

By Geo. W. House.

Is there an apiarist in America who is fully satisfied with the present situation of apiculture? Without doubt this question is answered as a unit. No. Is there one, interested in this pursuit, who would not gladly do his share to correct the many wrongs, and remove the stumbling blocks which now present themselves in a very formidable manner, threatening not only to depreciate the values of our products, but the ruination of our business? I do not believe there is a dissenting voice, especially if we were satisfied that the desired reforms can be easily and quickly accomplished. I can say with renewed confidence that the end in view is within our grasp. Then, why not take hold one and all, in an earnest manner and thus inaugurate *systems* that will lessen our labor, perfect *bureaus* that will give us valuable information, and enhance the value of our productions, *enact laws* for the protection of our interests, and form *associations* that will enlighten the fraternity and advance apiculture?

But some one asks, How can all this be accomplished? I can assure you it will not be by contentions and selfishness; nor by a broken link in the chain; not by one waiting for another, nor by some waiting to see the result before lending their assistance; but it must be by united action, or, if I may be permitted to use that favorite term, "coöperation."

Some may call this a hobby of mine, but think what you will, we must sooner or later own the coin, and acknowledge our weakness. I, for one, will advocate this cause, so long as I have the strength to wield my pen, and the power of speech.

I have just received information that foul brood is raging in the western part of this state, and that the beekeepers of Wyoming and Livingston counties are about to hold a meeting to take some action in the matter. This may be all well enough for self-protection and the enforcement of laws; but so long as we have no laws to enforce, the meeting would be of little or no consequence. It wants the united action of every beekeeper in the state to perfect anything definite in such cases. In time past the beekeepers have been appealed to for assistance in enacting such laws, but from sheer negligence they have omitted to lend a helping

hand; and now, in the hour of trial, they begin to realize their true situation, and beg for recognition.

Organization will benefit beekeepers most in marketing their products. We are now on the verge of marketing our new crop, and are anxiously awaiting reports in regard to prices, and the amount of honey that is likely to be placed upon our larger markets; whether the quality is A No. 1, or inferior, and what proportion will grade first, second and third; whether the eastern crop is short, thus causing a a demand for our western brothers to supply; or if the yield west is below an average and their markets must be supplied from the east.

We want to know the amount and quality of the crop in California and also the condition of the markets in Europe; we want to know if the English buyers feel disposed to purchase on the Pacific coast, or, if they anticipate buying east of the Mississippi; we want to know at all times the movements of honey and thus be able to take advantage of any weak point, and avoid rushing all of our honey upon some market (that opens with a strong demand and good prices) and causing a glutted market. There are many other points we would like to keep posted upon, but these are a few of the principal ones, and are questions of great importance to every apiarist.

I hear some one say — very true, you are right, but how can this valuable knowledge be attained? If you will impart such knowledge to me I am willing to pay for it, but I cannot afford to spend my time and rack my brain, for the sake of imparting this information to my neighbor, who is already crowding me, and who never gives a *dollar*, or any *time*, in any such good work. Furthermore, I don't believe such information is obtainable.

But wait a little, don't be too hasty, and I will try and tell you about this a little farther along. Let us look at our present situation, and see our real condition: first, some few who possibly have only a few colonies, comparatively speaking, and being favored with a splendid locality, and propitious weather, obtain a large surplus of honey: they run over with enthusiasm and rush to some bee journal to have their report published. The yield with the specialists or larger producers in the same state may be much below the average. They do not inform their brother beekeepers of such fact, and make no report (as this class of apiarists seldom do), for fear of being laughed at, or classed as second-rate beekeepers. Then again two neighboring beekeepers make reports; the one, reporting last, wants to outdo all the rest and greatly exaggerates the facts. Well, our journals publish these reports and what is the result?

Our dealers in honey, and our commission merchants, take the bee journals. They see these reports, and at once take up the argument that there is a very large yield in the country. Ask them what leads them to such belief; they will answer you thus: why, if a compara-

tively new man in the business of producing honey has been so successful, the specialists, or large producers, must have a tremendous yield this year, and they are keeping very quiet about it, for fear the prices will be ruined. Why, my dear sir, these larger producers are cunning, and we cannot depend upon their reports to form our basis to work on, but these smaller fellows, who do not ship much honey to our larger markets, are *honest* in *their* reports, as they have a home market and our prices do not affect them in the least. Such is the conversation you will have to contend with; and the result is, the markets open weak and irregular, with a downward tendency in prices — the retailer is afraid to put in a stock lest he may lose in the transaction. The commission dealer feels the reaction and cuts the prices still more for fear he may have a stock to carry over.

All this may be corrected by furnishing the dealers with strictly accurate reports from all parts of the country, in such a manner that they may place full confidence in the reports and feel perfectly safe in putting in their annual stock.

Our bee journals can assist us in this matter by suppressing all reports from publication and reporting with each issue, editorially, the comparative yield in the different localities, as summarized from reports received.

There is now in progress the organization of an association to be called the "*American Beekeepers' Bureau.*" The object is to obtain reliable and positive information in regard to the actual yield in all the honey-producing states, also the kind, quality and the condition of same, the demand, prices and condition of the various markets at home and abroad; the shipment and movement of honey each week from all parts. To instruct the members thereof, to whom and where to sell to their best advantage, and all other information that may be advantageous to its members. No member shall be allowed to divulge the information furnished him from time to time, under a penalty of being deprived of his membership. Every member shall assist in collecting reliable reports in his respective locality and report to the secretary who shall furnish each member with a tabulated report every two weeks and also instructions as to the movement of honey, and the state of the various large markets, and all other information that may be ordered by the board of directors and without any prejudice or favoritism towards any bee journal or member. In fact it is designed to instruct its members and inform them of everything that is beneficial to their interests, that they may act understandingly in marketing their products, in the protection of their interests and business, and the promotion of the science of apiculture.

It is of as much interest and of as much importance to our California apiarists, as those of the eastern and western states. It would be beneficial alike to *all* and it is important that we all take hold in

this matter with true spirit and an unflinching hand. About three hundred names have been handed in. There should be at least one thousand with which to organize, the more the better. Then let each and every one of us make manifest our assistance by sending in our names and we shall soon reap the benefits.

Manlius, N. Y., July 18, 1884.

FOUL BROOD.

By Henry Alley.

Reports of the spread of this dread and destructive disease are coming in from many sections of the country. I have nothing new to offer as to its cause or cure, but write to make a few cautionary suggestions which may check its spread somewhat.

The readers of some of the western bee journals will remember the controversy carried on last winter concerning this disease, and bring to mind a certain firm who dealt in it. Notwithstanding the fact that this firm was proved guilty of maliciously sending out colonies badly diseased, and the fact being known to some of the editors of those journals, they still continue to insert their advertisements, and the same party quite likely continue to deal out to the unsuspecting customer, goods of the same class that have proved so destructive the past two years.

Who can estimate the damage that has been done to the apiaries of this country by the distribution of three hundred colonies of bees infected with foul brood? These bees mostly went into the hands of those unacquainted with this disease and its very contagious effects. Either these bees were sold on account of their diseased condition, as they would certainly have died on the owners' hands in a short time, or else the dealers were ignorant of the nature of foul brood, and in either case the result is the same to those who purchase the bees.

Now, if the bees sent out by that firm this season are as badly diseased as those sent out by them last year, who should be held responsible for the damage? the dealer, or those who did the advertising?

It strikes me that the proprietors of these bee journals ought to be held responsible, justly, if not legally.

In my opinion, no man dealing in bees and supplies should be permitted to insert an advertisement offering them for sale, until his apiary has been inspected by a competent person to ascertain whether his bees are in a healthy condition, free from all diseases, and the supplies he offers for sale are all he claims for them.

This inspector should be appointed by the local state or by the national associations. When a dealer sends his "ad" to a paper, it should be accompanied by the certificate of the person appointed to inspect his apiary and goods.

By adopting the above plan, the

spread of foul brood will be checked very much. Some such method must be adopted, or the apiaries of this country will soon be annihilated, and with even a partial destruction of them, down will go the supply business, and the readers of the various bee journals will be few and far between. Let us take hold and stamp out this disease and thus protect the beekeepers against those parties who persist in disseminating it.

BEE CULTURE IN THE SOUTH.

By G. W. Demaree.

The honey harvest with us is over for this season. At the best, we can only hope for a fall harvest sufficient to supply our bees with winter stores.

The flow of nectar was marvellous for a short period, but the harvest was too short for a full crop to be gathered in. There will be no "big" reports from the "sunny south" this time; nevertheless, "bees have paid" as well as most rural pursuits. I suppose every progressive apiarist has learned some important lessons during the honey season and has thereby become stronger for future operations.

Perhaps it will be admitted by this time, that all the energy and applied intelligence of the combined bee fraternity have failed to devise a method which will successfully "suppress swarming." In my apiary, I have carefully tested all the methods recommended by practical and theoretical apicultural writers, and they have proved a failure when every point was reckoned in the count.

Doubtless many are ready to ask in despair, "Is it possible that my apiary is simply going to run off with me? Am I to be deprived of the right to decide just how many colonies my yard is to contain? Am I not to be the master of my own business?" Perhaps not exactly so, but I believe I can tell you how to keep your apiary in bounds.

The editor of "Gleanings" solved this interesting problem some time ago by asking in breathless wonder, why the "friends" did not sell the surplus increase of bees. The difficulty in the way of the practicability of this solution is that the "friends" do not own and publish a bee paper in their *own individual interest* — other people footing the expenses — in which they may "slop over" with advertising; and for the further reason that if everybody should edit a bee paper in his own interest there would be nobody left to buy bees or to be fools enough to pay the advertising bills of the "little foxes that spoil the vines."

Not one honey producer in a hundred is so situated that he can sell bees at a profit sufficient to cover his losses sustained by reason of having his working force scattered by swarming right in the midst of the honey harvest.

After trying every plan heretofore suggested — or nearly so —

to utilize the working force of my apiary, and to prevent disorganization just when perfect order is most needed, I have discovered a plan that will work every time, and by its practice puts the whole matter of increase into the hands of the bee master and makes him in fact master of his bees. The plan is this: keep on hand a supply of surplus hives, and when a colony shows signs of swarming—or swarms as for that matter—hunt up the queen and set the frame on which she is found in the new hive; now remove all the frames containing brood from the old hive, setting them in your "comb box." Now fill the old hive with empty combs —or with full sheets of foundation—and, after supplying them with a piece of comb containing larvæ to "fuss with," close up the hive. You now take the combs from the comb box, one at a time, give them a smart jerk in front of the old hive, and set them in the new hive with the queen, giving the new hive a new position in the apiary. Your plan now is to work the bees left in the old hive for all that is in them. To accomplish this they are not allowed to rear a queen, but are provided with a bit of larvæ to keep them contented and the space they occupy is diminished by a division board as the bees wear out. The honey is extracted from the combs as fast as filled till the season is over, or the bees are worn out. It is surprising how much honey can be obtained in this way as the bees have no brood to nurse and feed.

The new hive will soon recover its strength, as it has a laying queen and will seldom swarm that season, but if it should, I treat it in the same way.

This plan, if faithfully carried out, will keep the number of colonies in an apiary, as to spring and fall count, always the same, and thus we suppress increase, and utilize the working force of our bees. From what I have learned, the plan can be varied to almost any extent and the desired end reached.

After a colony has cast a swarm, the preparation above mentioned can be made, the queen captured from the swarm and given to the hive containing the brood; and the queenless bees hived in the new hive on the old stand will give the same results if managed in the same way.

Some will object to this plan on account of imagined "cruelty," failing to remember that all of our domestic animals are worn out, or are slaughtered for the use of man.

Christiansburg, Ky.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p.* 155, *Vol. II.*)

INABILITY OF DRONES TO WORK.

Other than the purpose already mentioned, for which the drones are created, they are of no practical utility; they cannot work, neither can they gather honey or pollen (for which last purpose their

hind legs are not adapted, as they have no spoon-like cavities or pollen baskets), nor can they build comb, or perform the other duties common to the worker bee.

They are very sensitive regarding the cold, flying only during the warm sunshine from eleven o'clock in the forenoon until five or six in the evening, and keep mostly near the centre of the brood nest in order to promote the secretion of the seminal fluid and increase their physical strength.

EXPULSION AND DESTRUCTION OF THE DRONES.

The drones are usually first hatched out in May and then toward the end of July and in August; in some hives also first in September or first in October even, particularly when a rich harvest of honey is brought out by the bees. If bad weather should occur in early spring and there should be a scarcity of honey, then the drones are destroyed, but afterwards new ones are hatched, when a better harvest of honey is made. For, when generally the queen no longer truly produces any young, when a famine occurs the hives become very much depopulated and many die.

But in this unfortunate time, not only the lack of honey for the nourishment of the young, but also the fear of foul brood (in case, they by continuing want, let the young starve, so as to cause certain destruction to them), prompts them to discontinue the breeding of the drones once so important to the bees.

The bees partly bite and partly sting the drones to death, but for the most part drag them out of the hive and prevent their return, that they fly away and are lost, or, on account of the chilly nights, perish. During the extermination of the drones, the bees show such great cruelty that, as soon as the drone battle begins they spare not even the eggs and the immature drones, but tear them out clean and even destroy them. It costs more by half to support one drone in honey than two or three worker bees, as the drones will not put up with more common food, like the worker bees who also make use of the pollen and thereby save much honey. They also, during a large portion of the year, prove too much of a burden, as well as unprofitable members, who do not work but eat what the others with sweat and toil have gathered early and late. Besides, their fecundation of the eggs is no longer needed, as few young bees more are wanted until the spring.

It is to be noticed that some bees do not willingly begin the extermination of the drones, and will often suffer them to remain even into October. In such case, one does well, especially if the number of drones is great, if one assists the bees in their work of destruction. The bees close about them so fiercely that one wonders that they should permit any drone to escape to run about the hive again; for the bees, as is their custom, fall upon them, suck out their honey and drive them out. If one helps the bees in the death of the drones

by pressing them with a piece of wood, the bees come off victorious, and are not hindered in their labors in the fields.

THE WORKER BEES; THEIR SEX AND ORGANIZATION.

The third kind of bees which are found in a hive are called the worker bees, because they do all the work. These constitute the majority of the colony and have their varied occupations. They belong, according to previously mentioned observations, to no sex, because they are already undeveloped females, but would have become fully developed, had they been bred in large cells. Yet I will leave undecided the opinions and conjectures of different naturalists who maintain that some worker bees lay drone eggs. I have at least with my own eyes often seen the queen laying drone eggs, as well as worker eggs, but no worker bees to lay drone eggs, and one can observe with the microscope no sign of any genital organs.

But regarding their other members: their proboscis or tongue is very distinct and of a chestnut color. Its structure is very wonderful and too detailed to be described here. They lick therewith the honey from the cups of the flowers, and bring it by various movements to the mouth and convey it to the œsophagus, at whose opening the really true tongue, and indeed a fleshy one, is, which takes and sends to the stomach the nourishment brought hither. As the œsophagus is extremely narrow, it will not permit of the passage of pollen or kindred substances; but the proboscis is very hairy, and resembles the tail of a fox. With it they lap up much honey, so that a colony of bees is able in one day to bring in four *maas* (about sixteen pounds) of honey.

On the head, between the eyes, they have two antennæ, which are very sensitive, and therewith they perceive all variations in the atmosphere. Indeed, perhaps and very naturally has the naturalist given them another sense which we know not what to call.

At least, it is extraordinary how acute is their sense of feeling among themselves,[1] and at what a great distance they can scent the honey. They have four wings, namely, two large which cover the body and underneath these two small, which together reflect the colors of the rainbow, when the rays of light or the sun falls upon them. Beneath these are two lung openings, by means of which they breathe, besides which they have four on the sides of the breast. Of their six legs, the two foremost serve also as hands. Each leg has two large and two small hooks, and the other and third pair of legs have each a brushlike part beset with stiff hairs which they use in the collection and deposition of their little balls of pollen. On the outside of the hindmost legs is formed a spoonlike cavity in which the pollen after being rolled into pellets is placed and carried to the hive.

(To be continued.)

[1] Huber considered the antennæ not only as organs of communication, but of sight as well.

HOLY LAND BEES.

By Henry Alley.

Almost every one with whom I have conversed concerning these bees speak of them as being very cross and the worst bees we have to handle.

I am aware that this bad reputation was given them by dealers in queens who never saw one of them; with the intention of course to injure the sale of the Syrians, and at the same time to "blow their own horn." Well, now, are the Syrians such an inferior race of bees as they have the reputation of being? So little has been said of them of late that what I have to say will not be out of place. Visitors, of whom I have had a large number the present season, say "we don't want Holy Land bees they are so cross." Walk right this way, my dear sir, and let us look at them. Well, we go to a hive solid full of fine and beautiful bees of this race. I remove the honey-board with the use of a very small amount of smoke, take out one of the combs and examine the bees all we wish. No one is stung, and it is very easy to demonstrate the fact, that these famous bees are as gentle as the most timid desire to see.

Mr. Daniel Howard, who went to Palestine last fall for a quantity of the Syrian queens, and who is now *en route* to this country, with two hundred fine queens, has written me many letters concerning their characteristics. An extract of one of his letters may be found in another column. Don't fail to read what he says of them. I will drop that part of the subject and speak briefly of their other excellent qualities. As honey gatherers they have no equal in any race. Of all the bees I have, the Syrians are the only race that keep their stock of honey all the time; the other races, now that forage is scarce, are losing all the time, while the Syrians are gaining some. As to the story that they do not ripen their honey properly, it is mere nonsense, and such a complaint never came from any one who had much experience with this variety of bees.

I was at the apiary of a friend some twelve miles from my own a short time ago, and he wanted me to see his fine section honey. Now bear in mind his bees are black hybrid and Italians. The combs in many of the boxes had the appearance of being wet under the capping; or, in other words, the honey did not appear to be well ripened. I remarked to him, that if he had had the Syrians he would have accused them of not ripening their honey. The fact is that, during a wet season, most races of bees do not and cannot ripen their honey as well they should. But I never saw anything of the kind with the Syrians in any season.

Here is another quality in which the Syrians excel. No race of bees can compare with them in point of prolificness. Their combs are always full of brood in all stages during the breeding season. No queens are too prolific for me.

The beauty of the Syrians is very attractive to the eye. I cannot speak too highly of this race of bees. They possess every desirable quality, and the wonder is that they are not more generally adopted by beekeepers. We are selling about as many Syrian queens this season as Italians.

Wenham, Mass.

EDITORIAL.

The matter with which the journal is filled this month is of vital importance, and should command the respectful consideration of every thoughtful apiarist. It shows that there is great need, of an immediate and permanent reform in our bee literature and beekeepers' associations. We are not alone in this, but find that the most prominent and wisest apiarists in America are with us.

While our associations should be the supreme authority upon all matters pertaining to apiculture and the interests of the community, they are almost powerless as regards coping with any evil that threatens the welfare of beekeeping and beekeepers.

For instance, when we ask our apiarists, what are the best means for obtaining reliable statistics of the honey and honey market, we do not receive very satisfactory replies: and why? Simply because at present we have no reliable means of ascertaining, and it is a vexed question and a hard one to solve.

Again, last year at the N. E. B. convention, we heard the low threatening murmur of the coming storm which should accompany that dread scourge, "foul brood;" this has been echoed by other associations, and we find that the Texas state association, in its late convention, has followed in the wake of Michigan and New York state in adopting resolutions to control and crush out this evil. But why do not these associations trace the origin of this disease, and bring to light, and punish, those who may either ignorantly or intentionally spread it among the apiaries of the beekeepers?

For instance, as Mr. Alley in his article states— last year one of the largest Western dealers, either through intention or criminal ignorance spread the disease of foul brood broadcast over our country, and I saw and examined a nucleus which came from his apiary, and it was infected with malignant "foul brood." This has been discussed in one of our Journals, and laid one side, but the work is not finished. Next season the cries of the victims will better tell how much harm has been done. This party sent us an advertisement to place in the Apiculturist, but we returned it, stating that we could not give it room until proof and evidence were given us that their apiaries were clear from foul brood. In reply to this, we were threatened if we should publish anything that would injure their business, but notwithstanding all this, other

journals take and still give place to their advertisement.

We would ask in all candor what kind of protection this is. We have determined whatever comes to speak the truth fearlessly. Who can estimate the harm that has already been done, and who knows if these opinions are wholly free from "foul brood?" These are questions of vital importance. And our sympathy for the business of one firm should not warrant us in permitting them through such ignorance and from other causes to endanger the whole community and threaten to paralyze the great industry in every section of our country.

It has been said that we soon should find that the beekeepers who had so much to say about reform were "hypocrites" (or words to that effect) and would fail to stand by us; but we are pleased to know that the most prominent among the beekeepers, prominent because of their worth, are with us in this, and endorse the steps that we have taken. The time has come when we should make immediate and permanent reforms, both in our bee literature and association work. We may struggle on individually almost indefinitely without accomplishing much; it needs united or coöperative action, and you, the thousands who read our journals, and depend upon beekeeping as a means of obtaining a livelihood, are those who should arouse yourselves from your apathy, come to our help, and rally about us.

Now, while in many regards we favor Mr. House's plan for solving this difficulty, yet there are breakers ahead even there, but these of course could and probably would be corrected when the constitution and by-laws of the associations were framed.

No associations, founded upon any platform which is not planked with a broad and protecting charity, and an interest in the welfare of the whole community, can ever reach the goal of success or fully fill the mission for which it was organized as the voice of the people.

Our object is to speak on behalf of the majority, and not in the interests of a few *prominent* individuals, and so long as we can do this, and see the course of apiculture advanced, no burden is too heavy for us to bear. It shall never be said of the "APICULTURIST" that it has failed to speak always in defence of the interests of the majority and in the cause of right and justice honestly and fearlessly.

All that we ask is that the beekeepers of America come to our support and rally about us.

BEE NOTES.

When this number of the journal reaches you the bulk of the surplus honey will have been gathered and the harvest past, although in sections where buckwheat is largely grown or perhaps in the south where the flowers yield honey for a longer season, the bees may yet gather more than enough to supply the wants of the colonies and perhaps store some surplus. Those

who have been too busy to requeen their apiaries by superseding the old and worthless ones should attend to it now; as the young queens are easily reared and will be in fine shape to commence work early next season, and if you rear them at once they will help build up the colonies before winter arrives.

You will find directions for rearing them, in any of the standard works on apiculture, but Alley's Handy Book gives the simplest and best instructions regarding this special branch.

As Mr. L. C. Root states in this number, "good queens are essential to the well being of the apiary;" and we would strongly advise our readers to rear a few for themselves and then compare them with the average dollar queens.

If you have some choice drones to keep, watch them carefully; or when the first chilly spell or honey dearth comes they will all be massacred. Give them to a queenless colony and they will be all right.

When you begin to crate up your honey, grade it very carefully and do not put a lot of poor honey in the centre of the crates and put the nice honey at the outside. Make two grades and it will pay you better and you will feel better about it.

There are those who try to control swarming until after the main honey harvest and then divide the colonies artificially. Now, if your hives are arranged so that you can winter two colonies in each hive and on the summer stands (as we always should), it is a good time to add empty combs or foundation and build up the colonies, giving the bees an entrance at opposite sides of the hives. Then, when you have some young laying queens you can put a division-board in the centre of each brood-nest and give a queen to each queenless half. We will speak more about these colonies and their management later on.

Remember that all work in and about the apiary should be done promptly and systematically.

If you want the best prices (both at home and abroad) for your honey put it up in neat crates and packages. It does not cost much more to do this and the results will show that it pays.

Do not be in too great a hurry to ship your honey; hold it for a while as there does not seem to be an overplus of this year's crop on hand. Try first and see how much you can sell at home as you will realize the most profit on that.

Remember that as the honey flow begins to slacken, the bees grow more irritable, and hence must be handled more gently; also look out for robber bees, and do not leave any honey around the apiary. Do not get the brood spread out so that the bees will leave it to chill when the nights are cool, and try if possible not to allow your bees to fill up the combs with fall honey for winter stores.

Some of these hints might be better later on, but perhaps it will be better to speak of them early, and then those who are just beginning will be prepared for what may come.

Do not forget that it is very injurious to disturb bees too much late in the fall. It is much better to begin preparations early and then "let them alone."

It is a good time during the latter part of this month and next to unite our weak colonies. This can be done even in our northern climate much later, but we do not always consider it advisable. Of course, those who have large apiaries will have their system of operations established, but these notes may benefit some of our younger readers. If you have any queens whose colonies seem to be lazy or

unprofitable as compared with the rest, supersede such queens *at once*. It will not pay to keep them. When the nights are chilly contract the entrances of the hives; it will pay.

EXCHANGES.

THE PRINCIPLES OF PROTECTION, BY L. F. ABBOTT. — No one need get fidgety at the title of my subject. This essay isn't based on the political bearing of tariff protection as the first thought might naturally suggest. I am a believer in protection, however, in every sense of the word, and especially where the rights of the farmer or the farmer's bees are concerned, the latter of which more directly concerns us at the present time. It is not my purpose to discuss each point exhaustively, but rather introduce propositions which seem to me to be established as facts and leave the discussion of the various points to wiser, if not older, heads.

DEFINED.

Proposition first: — The meaning of "protection." Not to be too critical, we will declare it to be guarding against extremes of temperature both in winter and summer. Protection may be afforded in various ways at both seasons, but all forms may not be equally efficacious in accomplishing the desired end. We may use single-walled hives loosely constructed for our bees, then leave them out-of-doors through the winter months, placing a few evergreen boughs or cornstalks around the hives and call it "protection," and it would be, but I think not the best kind. We can also use such hives as I have named and place the bees in a good cellar and call that "protection," and this I have often done with good results, but neither of these ways, I am convinced, is the right kind of protection for our bees.

Protection then, is something more than guarding against cold; it protects from cold, from humidity, from sudden changes induced by atmospheric influence, and also prevents the production and retention of deleterious gases and other influences incident to non-ventilation.

EXPLAINED.

Proposition second: — Why is protection necessary? Our bees are subject to unnatural conditions in the frame hive. To explain: bees left to follow their own course seldom fill the hive with uniform straight combs. This change has been brought about by the skill of the apiarist. Bees in a natural state never had wired foundation, running from front to rear of the hive, in beautiful and exact sheets upon which these little insects could continue the work so deftly begun and left by the foundation machine. A hive without bars or frames, occupied by bees, will, as a rule, be filled with combs of many forms, placed irregularly, some running at right angles with others, forming nooks, corners and galleries where the bees can find ample room to cluster in during the winter, and thus find protection from their mode of filling their hives with combs, which instinct leads them to adopt. On the other hand, the higher intelligence of man comes in and directs the work of the bees, who now produce perfectly straight and true combs, subject to cold drafts of air from the entrance up through the narrowly spaced frames and out by the loose joints of ill-constructed hives. Protection, then, is needed to restore the equilibrium, destroyed by this abnormal condition to which our bees are subjected by the advances, of what is esteemed, apicultural science.

EXTREMES.

Proposition third :— Protection essential in both out-door and in-door wintering. It is certainly necessary to protect from cold and sudden changes of weather when bees are left out-of-doors, and I hold it is no less the part of wisdom to give nearly the same protection when wintered within doors. In either case, condensation of moisture within the hive will take place ; out-of-doors to form frost within the hive, indoors, to saturate the unpainted walls and frames of the hive and form in drops upon the combs, causing dampness and mould. The colder the hive, the more serious the trouble, in either case. Protection, as with the chaff hive, obviates both difficulties to a certain extent, both by preventing excessive condensation, and again by allowing the moisture to escape, and also by absorption. An example : a colony placed in the cellar, with enamelled cloth on the frames, with absorbents on top of that, in January were found with mouldy combs, the enamelled cloth, on the side next the frames, covered with drops of water over its whole surface so it dripped when removed, and but little indication of absorption of moisture above the enamelled cloth. Another colony placed beside the former, with woollen cloth placed upon the frames and bransacks above that, was found with the upper story of the hive and the inside of the cover, covered with drops of water with the packing material damp, while the quilt was dry and warm. The same state of things would exist in case of out-door wintering with the exception that frost would collect unless more material was used to absorb the moisture. Protection, then, is needed to present an even temperature and a normal condition of dryness within the hive.

CHAFF.

Proposition fourth : — Bees to winter safely out-of-doors should be protected, as with the chaff hive, or on the plan of Mr. Additon's single hive, or by packing in some manner, if in single-walled hives. If wintered in the cellar, full protection is well, but protection above the bees by some absorbing material, as chaff, finely cut straw or cloth, is fully as essential as in out-door wintering.

NATURALLY.

Proposition fifth : — Protection is the natural condition of bees in their natural state. Bees left to seek their own home, as a rule, seek a hollow tree. There they are in a single walled hive, it is true, but not a thin-walled hive. But the conditions for disposing of the moisture arising from the bees are generally admirable. The hollow tree, made so by the decaying of its substance, is still subject to the same process of decay, while the bees are snugly ensconced within its dry and warm shelter. The first work of the swarm after being domiciled in their new home is to set up house-cleaning by thoroughly clearing their apartment. This they commence to do at the top, but there is always a portion of the upper part of the cavity to which the combs are not attached, and this for the reason that the decayed wood is not easily removed, and still deemed by the bees insecure to fasten their combs to. This partially decayed portion above the combs affords fine absorbing material in winter, being as dry as powder in the fall, when going into winter quarters, and in spring wet with the condensed moisture absorbed during the cold weather. Such being the natural conditions, our artificial devices should be as adequate and as much better as possible, hence

protection is a necessity, to a certain extent, under all circumstances, in supplying natural conditions.

FINALE.

Proposition sixth and last: —

Protection is needed in summer to guard against excessive heat. There is no doubt in my mind but that many times bees refrain from entering the section cases and surplus boxes, and cluster upon the outside of the hive, solely from the effects of the excessive heat within the upper portion of the hive. This I saw demonstrated last season, and have seen frequent cases before. An empty space above the section case in the upper story of the hive affords some relief, but I think some non-conducting material above the swarm, immediately above the sections when they are on, or over the frames in spring and early summer, quite essential.—*Lewiston Journal.*

CORRESPONDENCE.

ED. AM. APICULTURIST.

DEAR SIR: The July No. of the "Api" is before me and I notice with much gratification your kindly mention of my little pamphlet on "Preparing and Packing Honey for Shipment," and I greatly appreciate your words of commendation.

It is my earnest effort to serve the honey interest in every way possible, being thoroughly identified with it myself, and I believe one of the best ways to serve that interest is to restore confidence in the minds of the people in the genuineness of what they buy for honey; hence my affidavit of the purity of all honey that I sell. There are many people who would eat honey freely, if they felt sure they could always get the genuine article. Then, too, it will be noticed that I make my affidavit to cover all kinds of honey, both comb and extracted. This may seem unnecessary to beekeepers and those who know that comb honey cannot be adulterated, but it is astonishing to see what a number of people actually believe that comb honey is manufactured, and they seem surprised that I, being a honey dealer, don't know all about how and where it is done, and think they are imparting a piece of valuable information to me when they tell me about it; but when I offer them $25.00 for a pound of the manufactured stuff, with ample proof of its having been made entirely by human means and not by the bees, I seldom hear from them again.

Now, in regard to the stencil question, I will say that it is not with a view of hiding the identity of any honey, that I suggest no other than the shipping mark to be put on the crates, but simply because nine dealers in ten will scratch it off anyway and it only spoils the looks of the crate. If a dealer is disposed to misrepresent the goods and wishes to sell eastern honey for Californian he can easily scratch off the eastern grower's name and substitute a California brand. No, the better way would be if it is particularly desirable to have the grower's name and his goods to use a small rubber stamp directly on the section boxes, and then both evils are at once remedied. But it is impossible to fool anybody with eastern honey for Californian as the sections, frames, cases, general style of packing, etc., are so entirely different, that anyone, being at all familiar with either will at one recognize a marked difference between them.

I furnish now a stencil to my shippers, on application, with a number for each by which I may always recognize from whom any honey was received.

This simplifies the matter considerably and makes less work. If any of your readers have not yet received a copy of my little pamphlet, I shall be pleased to mail it free on application.

JEROME TWICHELL.

FRIEND LOCKE:

Bees are backward this season: swarming has but just begun. I have colonies that made preparations for swarming in fruit bloom that are ready to issue now and are waiting for a warm day. Clover has been in bloom for some time. Strong stocks have stored some surplus but nothing to speak of. Basswood will open in about ten days, but not more than half of the trees will bloom; yet with the help of teasels which are now beginning to yield I hope for a fair honey crop. I am glad to note the rapid improvement in the "Apiculturist." It is, to me, the most valuable bee publication we have. I am sure of finding something new every time it comes.

Your "presumption" in regard to friend Alley's article (page 164 current vol.) is quite right I believe, as I maintained in a recent article that the queen will gratify the wishes of her colony as far as she can. My young queens always lay drone eggs, where they are in any thing like a full stock by the time their first worker brood hatches.

Now that we are on this subject of drones, may I ask you a question?

Can we tell when a pure Italian queen is purely mated by her drone progeny? I do not mean by purely mated just simply to give three banded workers but rather what we call a breeding queen.[1]

[1]Generally daughters of pure Italian queens will produce bright, well-marked drones resembling the stock from which they came, even though they are mated with black drones. It is always well to select a queen whose drones are well-marked but in answer to your question we would say—not accurately.—ED.

I would suggest to J. D. Wands that there is such a thing as too much honey and too much room to winter well; the size of hive must be suited to size of colonies with, in my locality, about twenty lbs. of honey in cellar or twenty-five on summer stands. I prefer basswood honey or sugar syrup to anything else. My average loss I am positive is below the average in the forests around me. The secret of well wintering with me is to have a hive full of *young* bees and twenty to twenty-five pounds of *good* feed for them and then let them *alone* till warm weather comes.

C. M. GOODSPEED,

Thorn Hill, Onondaga Co., N. Y.

BOOK NOTICES AND REVIEWS.

Mr. Thomas G. Newman, 925 West Madison St., Chicago, Ill., editor of the American Bee Journal, has kindly sent us a copy of the "Bee keeper's Convention Hand-Book."

It is very neat, tasty, and convenient, and recommends itself to all those who wish to keep posted on convention matter. Price fifty cents, sold by the author.

NOTES AND QUERIES.

Mr. Alley, who was in our office recently, stated that a short time since he sent a queen to a gentleman in Arkansas and the cage and bees have been returned. They were ten days in transit and have been home about four or five days, making in all fourteen or fifteen days that they have been confined in the cage and not one of the bees have died.

They were fed on "Good" candy

placed in the cage. In making this candy Mr. Alley (who is having most excellent success this season with shipping his queens safe) uses part granulated and part powdered sugar with the honey.

We deeply regret being obliged to chronicle the death of the New England Apiarian.

Its editor from all that we can learn of him was a fine young man and one who hoped to benefit his brother beekeepers but failed to receive their support. This was no discredit to him: he did his part nobly and well.

It may do for some to shout in triumph over such downfalls, but just as sure as justice and right ever prevail just so sure "their day" will come. The beekeepers are not all "dupes" and "brainless" beings, to be led about at the will of those who care to make dollars out of them. Those who recognize the necessity and demand for an independent bee journal are among the most prominent, thoughtful, noble and successful apiarists in America; and, when they speak, those who have maligned and misrepresented their characters and lives will hang their heads in shame.

Time will tell.

We glean the following notes from a letter from Palestine written by Mr. David Howard, who has been purchasing queens in the Holy Land and who is now on his way to this country with 200 Holy Land queens.

"Regarding the Holy Land queens, I shall get them from some German beekeepers who have already been posted on the markings of the Holy Land bees and who are accustomed to rearing queens for the German and English market and understand their business; they having purchased their bees with the express idea of rearing queens.

I have examined their bees and find that they have the markings which you [Mr. Alley] say should characterize them. My attention was first called to *these markings* as being the status ideal of Holy Land bees.

In buying, they were careful to reject all that did not fill the bill. One of the brothers to whom I have referred has been running an apiary at or near Bethlehem and the brothers have made up their apiaries mostly since winter and now have nearly one hundred colonies. I find that bees are plentiful near Solomon's Pool; there are about 400 colonies. One small village near Jaffa has one hundred colonies.

In handling these bees I find them exceedingly gentle; more so, in fact, than any others that I ever handled and I have handled thousands of colonies. I am exceedingly delighted with Holy Land bees.

All the queens that I have seen of this race have quite different markings from any others with which I am acquainted. My eyesight is not very good, but I should say that they are a deep red, almost brown, and are very uniform in their markings with not a particle of variation. After I have become better acquainted with them, I may find a greater variation in the markings but they are exceedingly handsome anyway.

I went to-day (April 24) to see the German apiarists and find them completely overrun with honey and extracting all the time. I saw them extracting from combs which were extracted from only four days ago and some of the honey was capped over,-one of the brothers told me that their bees were worth one hundred dollars a day to them. I expect soon to start for home."

The delay in the issue of the present number of the Journal has

been unavoidable, but we trust that while we cannot perhaps explain matters satisfactorily, yet that our readers will bear patiently with us. We are laboring under many disadvantages of which they can know but little, and we are hoping for the time when our labors will be more systematically conducted. We also hope that they will render us all the aid in their power cheerfully and promptly. This will lighten our burdens and encourage us in our work. We are always ready to correct all mistakes and explain all matters that do not seem clear.

A friend sends us the following method of introducing queens, which is very simple and is worthy of the trial.

"Take a queen cage and cut a piece of muslin the size of the wire cloth which covers one side of the cage, and after removing the wire cloth replace it with this muslin, fastening the same by pasting it down with some thick flour paste. This cage (containing the queen) may then be placed on the tops of the frames near the bees, when they will eat their way into the cage and liberate the queen."

We would ask our readers to notice Mr. Goodspeed's letter in this number. It sounds like business.

We clip the following note from the Beeton World:—As several have been asking how to make food for shipping queens or for queen cages, I will give my method.

Take pulverized loaf sugar, dampen it with honey, allow it to remain in a warm place for twenty-four hours, then mix as much more pulverized sugar with it as will give it a tough, plastic consistency. All the sugar that it will possibly contain by kneading or mixing it may be put in when it is ready for use. I have found it a good plan when not needing it immediately, to mix as much sugar in the honey as possible, allowing it to stand for days or weeks, as the case may be, when the sugar and honey become thoroughly incorporated, and if too thin when using, a little more dry sugar may be added to stiffen it sufficiently to prevent it running and daubing the queen. When one requires it immediately, a small quantity of honey may be placed in the sugar and mixed, adding sugar until it becomes very stiff, when it is ready for use. — *D. A. Jones.*

QUESTIONS AND ANSWERS.

QUESTIONS BY THE EDITOR.

1. At what prices can you afford to sell your honey, both comb and extracted, in order to make it pay?

2. What proportion of extracted and comb honey should the average beekeeper produce?

3. What do you consider the best means for keeping the beekeepers posted regarding the condition of the honey market?

4. If several swarms should alight in one cluster, what is the most speedy and most effectual means of securing the queens and separating the bees into different colonies?

5. What do you consider the best method for uniting two or more colonies in one?

6. When you permit your bees to swarm naturally do you generally give them surplus sections at the time of hiving them. If so, why? and if not, why not?

ANSWERS BY L. C. ROOT.

1. After several years of very close observation as to the cost of producing honey, I come to the conclusion that if we are to be reasonably remunerated for our labor we should receive from eight to twelve cents for extracted and fifteen to twenty-two cents for box honey, net at wholesale price, varying according to quality and form of package.

I have endeavored to give these prices on the basis of fair pay for honest work.

2. This will vary in different localities and seasons, and with different systems of management.

My experience would be from one-half to twice the amount of extracted more than box.

3. At present we have no better way than for our journals to publish full market reports from best dealers in all of the leading cities. The subject of marketing our honey is one that must receive more attention if we are to receive remunerative prices.

I was pleased with the answer given to question No. 2 in the July number by Mr. Pond and Mr. Demaree.

If more of us would dispose of our honey at home instead of sending it in bulk to the city market where it is sold at prices which are often below cost of production, the market reports would soon be found to change.

4. My advice to such beekeepers as allow this condition of things to occur is to adopt a system of management that will prevent it.

See answer to No. 6.

5. I disturb the bees of both colonies until all are induced to fill themselves with honey. I then place a hive which neither of the stocks has occupied in the spot where I desire the united stock to stand. In this hive place the combs from the two to be united alternating the combs as they are placed in the new hive.

The preferable time to perform the operation is at night after the bees have stopped flying.

6. I have had no experience with natural swarming for several years.

I would not allow my bees to swarm naturally even if I were to go back to the box hive and brimstone pit. I would supply a stock of bees with empty boxes at the earliest possible date they would enter them and work freely.

Mohawk, N. Y.

ANSWERS BY E. E. HASTY.

1. My home price to those who come and get honey is 16 cts. for white comb, and 10 cts. for extracted. I aim to keep my home price steady at these figures, thinking it more to my interest to encourage the use of honey, and cultivate a home demand than to get "top notch" prices. In a city market, of course one has to vary with the market.

2. If he finds a satisfactory market for extracted honey let him produce that kind wholly. Otherwise nearly all comb, and just what extracted his home market calls for.

3. The bee papers.

4. It strikes me that the bees of one apiary differ from those of another, very much as one tribe of Indians differs from another. At any rate my bees are very prone to kill all queens when they mix up in swarming. My procedure is as follows: I take down swarms from the tree in a simple five cent basket with short legs tacked to it. A mingled mass is divided as nearly equally as may be into two or more baskets. Into each basket I lay a chunk of honey or a damaged section. Next, the basket is set into one of the handy little pits near by, the cover is turned down, a few shovelfuls of earth are thrown over them, and there they are left to meditate upon their manners for two or three days. On being removed from the pit, the bees in each basket are hived as usual except that a frame of comb containing newly hatched larvæ from some approved stock is given them from which to raise a queen. The queens in such masses, if attacked, fall to the ground in a small bunch of bees a few moments after the swarms are settled. With a smoker in hand one can, if fortunate, rescue some of them alive, and make use of them.

5. As may be imagined from the above, I am averse to uniting bees, as a general thing. Let them paddle their own canoes, live or die; and if they die, take it philosophically, and set them down as unworthy to live. Strengthen colonies by giving sealed brood, or downy young bees, rather than by turning in entire weak colonies.

I unite a queenless colony in spring with its companion colony in the same hive (I winter two and two). Very friendly relations spring up between two colonies only separated by an enamel cloth partition; and often the first notice one has of queenlessness will be finding that the bees have nearly all deserted one side and gone in on the other. To unite such colonies all that is needed is to close the entrance on the queenless side, and pull out the little block that closes the rabbet where the partition comes across.

Weak colonies and late swarms are also united in November. Five wide frames full of sections of inferior honey are put in a hive, leaving wide spaces between of course. The bees to be

united are first smoked and then shaken down in front "higglety pigglety," so as to bewilder and mix them thoroughly, in which condition they run into their new quarters. Not two or three colonies merely are put in thus, but eight or ten of them, all the hive will hold. Bees thus treated I find to winter splendidly, to preserve a queen, and to be ready to divide in the spring when others are "petering out" with spring dwindling.

6. Usually not, as there is a little danger that brood-rearing may commence in the sections.

ANSWERS BY PROF. A. J. COOK.

1. I think we should have ten cents for extracted honey and twenty cents for comb. I think we can live with honey at eight cents and sixteen cents, but these last prices are too low.

2. This should depend on the market. If he can find ready sale for extracted honey at more than half the price he can get for comb, then I think he may well confine his efforts largely to the production of extracted honey.

3. I think our bee journals ably supported by conventions, and beekeepers can do this best.

4, We clip queens' wings and the bees go back with no further trouble. It is only necessary to catch and cage the queen.

5. We find that by shaking all the bees into a new hive which stands midway between old hives — these latter must be close together — alternating the frames, or as many as required, smoking liberally and doing all just at nightfall nearly always succeeds well.

6. We would give foundation in brood frames and if in height of honey season add sections at once. The bees wil be in them within three or four days often strong. This is reason enough.

Lansing, Mich., July, 1884.

ANSWERS BY J. E. POND, JR.

1. I never have figured up the cost of my apiary closely; I have used it solely for experimental purposes, and as a means of recreative exercise; consequently the price at which I could afford to sell would be no criterion, as my honey has probably cost me considerably more per pound, than the retail price it ordinarily demands.

2. It would depend wholly upon his location, and the demands of the market, and as the market varies from year to year, no foretelling can accurately be done. In this case as in many others connected not only with apiculture, but with business of many other kinds, each producer must be a law unto himself, and do the best he can: his judgment will sometimes run astray.

3. Owing to the fact that dealers will always look to their own interests and keep the market quotations at the lowest possible figure, beekeepers should in self-defence form themselves into an association for mutual protection. By so doing they will put themselves into a position such, that they can control the market themselves, and not allow it to be controlled as in the past by a class whose interests are directly and diametrically opposed to them. Our beekeepers might, if they would unite, become a power in the land, but so long as they work each on "his own hook," they will be at the mercy of the middle-men.

4. Shake the bees into a large box, set them into a cool dark cellar and they will soon separate themselves. This is the plan I have used on two or three occasions with success.

5. Bring the hives close together, then remove one-half the frames from each colony, shaking the bees in front, then change the frames from the hive to be disused entirely into the one to remain, by alternating the frames of comb and adhering bees, with the frames in the other hive. The bees outside should be shaken in front of the hive and allowed to crawl in. One of the queens should be caged and taken away; the other may be allowed to remain without caging. This process so mixes up, disunites, and disconcerts the bees of each colony that they accept the situation and unite peaceably.

6. I do not. My locality is one in which the honey yield is very slow, and if sections are put on at once, brood would be placed in them before enough honey could be gathered to supply the actual wants of the brood chamber. I usually wait until the bees get well at work in the frames, before putting on sections.

ANSWERS BY P. H. ELWOOD.

1. Prices lately have been as low as we can afford to have them. Owing to the general short crop of white honey this season, prices ought to be better.

2. This depends on locality, market and beekeeper. In some localities the honey flow is of so short duration that boxes are rarely finished with one kind of honey. It requires less skill to secure extracted honey.

3. The best means we have now is correspondence with reliable beekeepers in different parts of the country.

4 & 6. Have no natural swarming.

5. Take the frames with bees and quietly put them into a hive together, alternating the frames. When this cannot be done shake off the bees in front of the hive and let them run in. Mix them up as much as possible and allow them to fill up with honey if convenient.

Starkville, N. Y., July 22, 1884.

ANSWERS BY G. W. HOUSE.

1. 16 cents for comb honey, 10 cents for extracted.

2. It depends much upon the season — on an average about one-fourth extracted, when both are produced.

3. See article on page 171.

4. Shake them on a sheet, find and cage the queens and divide the bees as you like.

5. By mixing the frames of bees and brood alternately through the hive.

6. No, it depends upon the flow of honey, but usually two to five days after, the object being to get the brood nest started and prevent the queen going into the boxes.

ANSWERS BY G. W. DEMAREE.

1. I should say 12½ for extracted, and 16⅔ for comb in good marketable shape. It depends much, however, on the location occupied by the apiarist. I can find locations where I could make honey-producing profitable at much lower figures.

2. Every apiarist should consult his best interest when deciding this point. I would say about an equal portion of each class of goods. It is to the interest of the honey-producers to keep extracted honey before the public, whether it sells readily or not. It must be the staple article in the honey line some day.

3. Make fewer exaggerated reports. I hope some day to see a well organized society in the interest of apiculture, originating with the local societies, and culminating in a great national association, so well organized that it can post its members from headquarters about all important matters.

4. I tumble them into a large shallow box, and hunt out the queens by keeping the bees in motion by stirring them with a stick. The bees are then divided, and each division supplied with a queen. I find this method attended with the least amount of fussing in the long run.

5. Make one of the colonies queenless two or three days in advance; then unite the combs interchangeably, thus so "mixing" them till they "don't know their aunt Hanna."

6. It depends on how the new hive is fitted up to receive the swarm, as to when they are ready for the surplus cases. If hived on full sheets of foundation, twenty-four hours after hiving them is soon enough for the surplus cases, for if put on at the start the queen may sometimes waste her precious time, loitering in the cases, as bees instinctively seek the highest point in the hive, when first hived.

But if hived on a full suit of combs filled with brood the cases should go on at once.

Christiansburg, Ky.

LETTER BOX.

Thorn Hill, Onondaga Co., N. Y.

FRIEND LOCKE:

I notice in your Editorial a call for subscriptions. Now I will make you the following offer. If you think it will not help you, don't accept it, as I have more calls for my queens than I can possibly fill, making this offer just to help the circulation of the Apiculturist.

For three yearly subscriptions to the Apiculturist at publisher's price, I will send free one untested queen, Italian, Cyprian or Holy Land; or five subscriptions as above, one tested Italian queen; for ten as above, one choice breeding queen, Italian. I cannot always ship by return mail, but will do so as far as possible. Make money orders or postal notes payable on Skaneateles, N. Y.

C. M. GOODSPEED.

Oriskany, N. Y. July 24, 1884.

DEAR FRIEND LOCKE:

Please find enclosed $2.00 for the "Apiculturist." It is the *best* bee journal published in the English language, and always full of meat for the beekeepers.

W. E. CLARK.

Olathe, Johnson Co., Kans., July 17, 1884.

DEAR SIR:

Please find enclosed $1.00 for renewal of my subscription, and pardon me for not sending it sooner.

I think that your journal is the best of them all.

PHIL SCHAUB.

Logansville, York Co., Pa.

DEAR SIR:

Please find enclosed $1.00 for renewal of your Journal. I like it very much, and think that *every* beekeeper should have it, as it is very practical and instructive. I enjoy reading it very much, and no beekeeper should be without it.

ELIAS HENGST.

So. Weymouth, May 28, 1884.

DEAR SIR:

I wish in your next issue you would inform the gentleman who advocated the use of propolis as a protection from the stings of bees when handling, that I do not thank him for the information. I tried it, transferred two colonies, did not get stung, but did get awfully poisoned, my hands are covered with blotches, and I know I have handled nothing else that could do it.

My regards; like your magazine much.

A. O. CRAWFORD.

ED. OF AM. APICULTURIST:

Inquiries are coming from all quarters as to the prospect for the honey crop, and for the sale of the same.

The season is now sufficiently advanced to warrant one in giving an expression of what may be anticipated.

The yield from clover is reported light from most quarters. In many states the prospect for basswood is not encouraging.

In many parts of our own state basswood was injured by frost, and from this and other causes it will be below the average. At this date the prospect for a large yield of white honey is not encouraging. I predict good prices for best grades of honey.

L. C. ROOT.

Clockville, N. Y., July, 1884.

FRIEND LOCKE:

Being a reader of all the bee journals, I think the "Api" is the best. It is worth $5.00 a year, to any energetic beekeeper and rather than to see it drag in the rear of others, or go down, I will pledge myself yearly to that amount to maintain its independence and position. Onward, and not back, is the marching cry of the scientific beekeepers.

Respectfully,

W. V. BOSWORTH, JR.

NOTICE.

We learn from Mr. Alley that Mr. Howard, upon his return from Palestine with his Holyland queens, will bring them to Wenham, Mass., and that Mr. Howard is to be Mr. Alley's guest.

ERRATUM. On p. 181, left column, 9th line, for opinions *read* apiaries.

The American Apiculturist.

A Journal devoted to Scientific and Practical Beekeeping.

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Those wishing special rates will please correspond with the Editor.

All communications should be addressed to S. M. LOCKE, Salem, Mass.

OUR CONVENTIONS.

BY W. C. CLARK.

IN these days of advancement and progression, we may properly ask the questions, What shall we do at our conventions, and how shall we spend the time to the best advantage for the largest number? I think that if these questions were asked of fifty of our best apiarists, as many different answers would be the result. We all have our own view of how matters should be conducted and are apt to look at things through our own narrow view of them. Now while we may not and cannot accept all of these different views, and carry out all of their plans, yet we should accept them as given with the best intentions and in the best interests of all concerned.

The good Book tells us when David had conquered all the tribes around him and was resting from war, living quietly in his kingly palace made of cedar, as he walked out one day and looked down upon the tent covering the ark of the covenant, he said to himself, "I will build a house for the Lord Most High to dwell in."

Now while this was not God's plan, yet He accepted David's motive as good and blessed him, but did not permit him to build the house he wished. So we should give each one the credit of pure motives, if we do not agree with them. We are just as liable to be wrong as they.

My views will differ from those of many of our brother beekeepers, yet I shall think none the less of them on this account and they in return should give me credit of being honest. I am connected with no bee-journal or supply firm and therefore have no "axe to grind" and am no "caged canary," but as free as the swallow that skims through the air.

I believe that, at our conventions, all questions relative to the interests of beekeepers should be discussed on their merits and for the good of the majority without bitterness or jealousy. The conventions, with their rights and privileges, belong to the many and not to a few, and no ring has any right to

control them to the detriment of the general welfare of all. What benefits the majority should benefit each beekeeper individually.

I think that the time has come when our conventions should study more carefully the disposing of the produce of our apiaries for a fair and remunerative price. We have spent too much of our time, at conventions in the past, in trying to encourage people to engage in beekeeping; and I think that we have been led into this somewhat, if not largely, by supply dealers and our bee journals. Oh! I must walk carefully here, or I shall step on friend Doolittle's toes; and, as I weigh about 240 lbs., it might make him squeal. I love to read his writings and have been very much benefited by them, but when he says that the time spent at conventions in discussing bee literature is either wrongly spent or wasted, I beg to differ from him.

The bee journals wield more influence in moulding and forming the plans of the beekeeper and advancing apiculture than all else combined; thus it is of the greatest importance that such journals should inculcate sound doctrines, and I would like to know why their supporters in convention have not a right to censure, advise and express their opinions regarding the bee journals and what they, as the representatives of the beekeeping fraternity, require of them.

I do not claim that they are obliged to follow the advice or heed the censure. Persons have a right under the law to run their journals as they choose and they will say it is so with us, we have a right to take them or not as we like. I think that it is a question that may properly be discussed at our conventions so that they may understand what the beekeepers require of them, and all such discussion should be carried on in a kind and unselfish spirit.

Now if all the journals were as fortunate after the discussion last winter at the Northeastern convention as Mr. Aspinwall (editor of the Magazine) said that he was, they should give the convention a vote of thanks. He claims to have received one hundred per cent more subscriptions after than he had before the convention so that no harm was done him (but, oh, such a pelting we got, eh!).

There is another question of vital importance that can always be discussed at our conventions with profit to the beekeepers, and that is, marketing our honey. I do not mean by this to determine how we shall place it on the market in order to benefit the supply dealers most, but so that it will net the producer the most money; we hear a great deal about pleasing the consumer by putting our honey in one pound, one-half pound, and one-quarter pound sections.

The consumer never has called for such small packages: it is the ever-restless supply dealer and I believe every such package put on the market is an injury to the producer and consumer, and we shall all see it sooner or later. However, let us discuss this question at

our conventions and get all the light we can. "In the multitude of counsel there is wisdom."

Then there are a number of questions relative to the science of apiculture that may occupy with profit a portion of the time spent in discussion at our conventions.

The more that we study into the science of beekeeping, the more interested we become in its teachings.

Of course we have our visionary beekeeper who is promising to astonish "the natives" with his wonderful discoveries, but when we get where beekeeping will be a paying business of itself, then we can call it one of the paying industries and not until then. We are not there yet, or else we should not be advised to associate some other business with it in order to make it pay.

Notwithstanding all this, I do think that beekeeping of itself will pay in a good locality and with proper management just the same as small fruit and other industries.

There is one other, and to me an important, feature, and one that I prize very highly, connected with our conventions; that is, the social part. Most of us meet with each other at no other time and I have found some very pleasant acquaintances there, the memory of which will last as long as life continues here, and perhaps reach over into the unknown! If so, it will not mar our enjoyment there. The good Lord has created us social beings: let us enjoy all the good we can with each other and make this feature of our convention a blessing to all in attendance. I hope to see our National convention at Rochester, this fall, the largest and best ever held on this continent; it can and will be if we all do our best to make it so. Let us come together as co-workers in our pleasant calling and work hand in hand for the good of all.

Oriskany, N. Y.

THE COMING BEE.

By J. E. Pond, jr.

The beekeepers of the world will demand a standard of comparison, before they will acknowledge and accept any race or strain of bees that may be offered as such, as the "coming bee." This standard must possess certain distinguishing, distinguishable, uneradicable, and ever present points, with which it will endow its progeny, and by which it may be positively known, and identified during all coming time. Nothing short of this should be and nothing short of this will be accepted.

A cross possibly (although not probably) may be bred, that will possess certain points of superiority, and which, were there some means of positively identifying the individuals, might be accepted, but without these marks, of whatever nature they may be, it will be utterly impossible for any one to determine whether he is cheated or not in his purchases. One, and the great point that has

made the Italian bee so great a favorite, is the ease by which it can be identified as such, and by which any attempts at fraud are at once discovered. As well might we attempt to set up a standard in cattle or sheep, without breeding them up to the point of possessing certain characteristics of form or color, as to attempt to do the same with our bees. For the reasons given above, and which reasons I think will be accepted by all as correct, it will be seen at once that the "coming bee" will never be a cross between the black and yellow races. Such crosses can never be made to give any fixed standard by which the candidate for favor can be identified. Breed as you will, either the black or yellow will predominate in some individuals, while in others the mixture will partake in a greater or less degree of either or both. In fact, we may have from the same progenitors, workers with three yellow stripes or bands, two bands, one band, and no bands at all, and it will be impossible to determine until the individuals emerge from their cells which race predominates. This brings us to the question at once, From what source will the "coming bee" spring? My answer is, either from the Italian alone, or from a cross with that variety, and some of the new yellow races. I believe that the possibilities of the Italian bee are yet unknown. With care in breeding it, we may create a strain that will be as much superior to anything now known, as the Italian is at the present time, in the estimation of a large majority. And why should we experiment to any great extent in crossing our bees, before we exhaust the possibilities of breeding the pure Italians? Can any one give a reason, save the desire to see what can be done in a new direction? In stock breeding, success has only been obtained in sticking closely to some well devised and matured plan of operations, and exhausting these, before making any changes. The noble Shorthorn and the graceful Jersey are familiar examples of what may be done by breeding closely in a given direction, and on a given line; and can we expect to do more than this in breeding our bees? It is true that in breeding bees, we have the advantage of rearing several generations, in the same time that the stock breeder is rearing one; but this advantage is overcome entirely by the fact, that the stock breeder can select from the best individual specimens, with which to produce future progeny, while we with our bees, must to a certain extent leave the matter of raising individual specimens and mating them, to the blind law of chance. True, we may breed a queen from a tested mother, still the queen so bred may prove a poor specimen, and the copulating drone may prove a poor specimen also; as a matter of fact the advantage claimed in being able to breed a number of generations in a single season is more theoretical than real. The best individual of a given race may

produce a poor specimen of that race, and this can only be known by applying certain tests, which tests will cover a long period of time.

The Italian bee has stood, and stood well, the many tests it has been called upon in the past to endure; we know its qualities and to a certain extent its capabilities; can we then do better than to continue breeding it, and by proper selections, endeavor to rear from it the bee of the future? And are we not working in a more reasonable direction in doing this, than we are by attempting to soar into the realms of the unknown, and the almost unknowable? I have no desire to prevent expansion in any direction, and I hope that experiments in every feasible direction will be made, till the "coming bee" is positively assured to us; but I do believe that when we get the "coming bee," the bee of the future, the queen of them all, we shall get it not from a cross of any of the races now known, but by selecting from the best of our thoroughly tried, well proved, and never-found-wanting Italians.

Foxboro, Mass., August, 1884.

QUEEN-REARING IN THE FALL OF THE YEAR.

By R. F. Holterman.

It is universally admitted that rearing queens under the swarming impulse is, if not an advantage, at least not accompanied by loss. The question now arises how to create that impulse in the most profitable manner. The Holy Land bees will give us more queen cells; therefore let us aim at having them as workers. Next, we may prefer rearing our queens from some other colony, either Italians, or a mixture which may be particularly energetic. Let us take a colony of Holy Lands or their crosses and the colony from which we wish to rear queens, and exchange queens, introducing them in the usual manner; now this colony should require very little to create the swarming impulse, which little can be effected by taking the combs from another colony having brood just hatching, and exchanging with younger brood in the queen-rearing colony, also by shaking bees in front and some distance from the queen-rearing colony. Having previously partially closed the hive, young bees only will be admitted. Or, perhaps as well, we can create this swarming impulse by uncapping the honey in the hive and giving them generous, but not too plentiful feed at night, one-half to one pound would be sufficient at a time; our new queen will lay the eggs, and our bees that appear so energetic in cell-building do the labor. Of course it is unnecessary to remind here, except for the beginner, that this season most of the drones are being and have been killed off by colonies having queens. Of course as long as the swarming impulse is kept up, the drones will be unmolested in a colony; but to make sure it is well

to have a "drone hive" made by taking combs of drone brood from colonies from which we would wish to breed, and placing them in a hive without a queen, but bees enough to take care of them. It is also obvious that queens mated now are more certain to meet the drones we desire than those flying earlier.

Alliston, Ont., Can.

ABUSES THROUGH EXTRACTOR AND OTHERWISE.

By A. J. Goodwin, M. D.

These abuses, I believe, are mostly confined to apiaries wherein the colonies are restricted to but a single super or those having none. In the latter case the abuse is often double in character and caused

1. By emptying the brood combs as fast as filled during a honey flow rendering the colony first disconcerted, alarmed, then gorged and stupefied thereby, for that day at least if not longer, thus upsetting all their interior plans for the future. At the next week's visit the same is repeated and so on through the season of surplus, and often, yes, sadly too often, perish by the score in more than one apiary and practically ruining as many more for the next season's work (as was the case with several here last season) by being drained about the cessation of the honey flow; the beekeeper (?) hoping that somehow they might pick up enough to carry them through until spring.

Following this came robbing, and its train of evils; then swarming out and absconding, the survivors have grown now beautifully less by winter time. Then comes dysentery and ends the existence of many a once promising colony; the moth using up the combs, the wreck is complete.

2. The fluid obtained in the manner alluded to above is not honey unless it is either sealed or in condition for sealing in the hive, but it is raw nectar and carries within itself the elements of its own destruction if removed from the hive before being cured. It is in all grades from limpid, sappy nectar up to a condition nearing that of capped honey and will not keep as true sealed honey will when extracted. True, the labor of uncapping and double-turning the crank is saved to the apiculturist, one of whom told me that to allow uncapping was to lose one-third of my crop. I replied, that one-third was but water and must be evaporated, and I am a believer that no evaporated article can equal honey cured and sealed in the hive either as to taste or keeping; and, further yet, that heavy swarms with the proper facilities given can do the work at much less cost than I can at least with all the sun, wind, stoves, tanks, etc., combined and produce a better article and an article that will stay put when put.

Now where we extract uncapped honey in the honey season in a climate like ours, warm and moist, to excess, you dare not bring such honey (?) tightly and roll it away

as I do mine that is capped over before extracting, which will keep in any climate at any season. Yes, over $400 worth of such unsealed was lost last summer by shippers here in travelling *towards* Cincinnati, Ohio; it simply gained "freedom" as it advanced north until the barrels ceased to hold it, owing to jolting and chemical changes with a warm temperature to hasten matters.

3. This abuse, if once known in connection with the former, by a consuming public or an honest dealer, is enough to ruin the sale of honey from any apiary where it is practised, and I am sorry to say I have met with several such in my time and during my latest years. I allude to the presence of uncapped larvæ in all stages of growth with their milky food attached to them floating on the surface of honey in the extractor and occupying the straining bag often to repletion. Crawling over that dead, bloated, squirming mass were the just hatched young bees completing a picture (not overdrawn at all), enough to disgust any but the copper lined ones.

Now, brethren, this being true and no fancy picture, as perhaps many of you can verify, is there not great need of reform in cleanliness? For where such doings are permitted and practised the imagination can picture the balance of utensils, etc. I ask what is the product of such apiaries? Strained honey (?). At what is it quoted? Can the evil be cured? Is it any wonder that, such being the case, that the best of extracted honey is not wanted at all in some market reports and is slow of sale in others? A few instances only of the above are needed to fall under the eagle gaze of some bright reporter to enable him to write such a sensational article that would go the rounds of the public press as would ruin for a generation the sale of the best honey on earth through its associations. The moral is a plain and a double one: for one, let rigid cleanliness be enforced and all brood frames let severely alone; then visitors as they are dropping in unawares cannot leave, saying, we've seen the "skeleton" in that apiary and won't go there again.

"*Live Oak Apiary,*"

New Smyrna, Fla.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p. 178, Vol. II.*)

THE DIFFERENT OCCUPATIONS OF THE WORKER BEES.

The worker bees have their mutual and varied occupations, with which indeed they are all familiar, and their methods of work are so arranged that their employments are varied and interchangeable. Some are interested in business about the hive; some are engaged in cell-building; others form chain-like clusters, hanging by each other's feet, often remaining thus for

many days, forming, so to speak, ladders over which the worker bees and those returning from the fields may pass. These chains they make of different lengths, and the bees of which they are formed are placed in seemingly uncomfortable positions; especially is this the case when a new swarm begins to build and the hive is still empty, for then those bees which come home laden with honey feed those which hang in these clusters as well as the working bees and administer to them part of the honey, reaching it to them with the tongue, and also permitting them to eat a portion of the pollen with which they are laden.

Others mould the cells and cap them over; others clean the hive; still others cement the chinks and crevices in the hive with propolis; some pack into the cells the pollen which is brought home from the fields by the working bees, whose duty this seems to be; others care for and feed the young, make and knead the larval food; others guard the entrance of the hive, while still others assume yet different duties.

Others go forth and obtain honey, wax, propolis, and water out of the brooks or marshes, etc. They have sufficient knowledge of the location of their homes to find them again without difficulty, so that if, while they are absent, one removes the hive only a short distance, they lose their way. Likewise, should they be overtaken by the thickest fog, they find their way back again.

For their different occupations, Nature has provided them with appropriate members, and an extraordinary skill and celerity. They partly lick, partly suck the honey with their proboscis and take it in their honey bag, wherein all that is harmful is separated, and especially that from the honey dew, which then goes to the poison bag, causing the swelling produced by stinging, but the honey they return perfectly good and wholesome to the cell.

The pollen, which the bees use partly for nourishment, partly for food for the young, they gather in an incredibly short time, fly therewith a little way and give it during flight to the front feet; these share it with the middle feet, and the middle feet rub it upon the shovel-like hollow of the hind feet, which is all done in the twinkling of an eye. This they repeat until they are fully laden when they return home. Upon reaching the hive, they deposit the pollen in a cell very ingeniously, stretch the two beladened feet behind them, and brush off the two little balls of pollen with the middle feet from the hind ones, leaving them in the cell; for then another bee which attends to home duties is in readiness to take it, and she with her mandibles kneads it and packs it in the cell.

But, if it has rained, or very early in the morning the flowers are covered with a heavy dew, and thereby the pollen does not pack well on the spoonlike cavity of the hind legs, it covers them therewith, and the little particles of pollen adhere to the hairs of the whole

body, the head, the breast and the legs, and they come home yellow or green or red as is the nature of the flowers, for they take away their booty as much as they can themselves; but mostly by one of the other working bees at home is it plucked off and laid away for store.

The propolis, or bee glue, which differs from the wax and is, properly speaking, a gummy rosin, but after being worked becomes quite hard, the bees gather in quite a different way. They bite it with the mandibles from the buds or young twigs of the fir, pine, birch, elm and other trees and shrubs and attach it to the legs, but not in flight as with the pollen, but when they are resting. The process is, however, more slow and arduous; they detach small portions of it with their mandibles, kneading it, and the fore feet help to form it. They take it down with the teeth and give it to the middle feet, these bring it to the cavity on the hind feet and tap it with three or four strokes thereon. If they are now so fully laden that they can carry it away, they hasten back again. But the bees, upon their return home, cannot unload this propolis themselves, but other bees tear it into little pieces with their teeth, and bring it in the same to a crevice which needs stopping. They work upon it directly and crudely, without depositing any in the cells. They make use of it to stop up all holes and openings in their dwellings and often to coat the walls of their hives, and especially to strengthen their combs. But in the collecting of this propolis, they do not lose any valuable time, when they can gather honey and pollen, but it happens only economically in the springtime when they have settled in quite a new hive and more frequently in the fall, when the honey harvest is over and they are making ready their winter quarters.

Besides, they bring water, concerning the quality of which they are not particular. They lick it from the puddles, from places where urine has been discharged, out of the fresh earth, from earth containing saltpetre, etc., or any place wherein salt exists, and bring it in the stomach to their homes.

Probably they use this alkaline substance for the nourishment of the young brood to a certain age; perhaps, also, in the digestion of this with honey mixed with pollen for the preparation of wax in their wax stomachs. For, what the bees carry home is by no means wax, but they prepare it in their bodies by the digestion of honey and pollen which last they probably make use of.

There are accurate proofs indeed, that when confined and fed with clean, pure honey, the bees build wax cells; but, whether without pollen they would not soon become exhausted, and cease to exude in great quantities, I cannot for the present warrant. From the bee-bread they obtain, indeed, only a very small part of the true wax. The greatest part of this matter serves as their food. They eat this

bee-bread which passes through their mouth into the first stomach, there mixes with honey and then goes into the second stomach, where probably the separation of that part intended for nourishment and that for the true wax takes place, which exudes through the six rings on their abdomens, and between which they show as clear white scales which one can often plainly see. If, for instance, the stomach, which at the same time must make undulatory movements (for it as well has distinct rings) is well warmed, the wax exudes and this exudation comes forth in very soft scales between the rings which lie on the stomach. The bees know when to draw out these warm, tender wax flakes with their feet from their little compartments with an incredible swiftness and construct their cells therewith. But generally they take the necessary wax scales from between the rings on the under side of the abdomens of the wax-secreting bees that hang in the chainlike clusters. For if the bee, which builds the cell, her little store of wax has exhausted, she goes into the cluster and gathers again anew her mouth full of wax scales.

Besides it is certain that this digestion and fine preparation of wax exists, and experience confirms that the wax is not unwholesome, and that pure honey in the comb may be eaten without injury by those who love it.

Rodheim, Germany, July, 1783.

EDITORIAL.

Whenever you find, thoughtful and able men warning the public of impending danger and advising needed reforms, it is far better to listen to them and take immediate action than to listen to the few interested parties who never were known to work for the interest of the majority.

The article in this number from the pen of Mr. W. E. Clark, Ex President of the N. E. B. A., and one whose opinion demands respect brings us again face to face with the subjects of conventions or associations; and, indeed, we deem this subject of more vital importance than any other which comes before the beekeepers for consideration.

Why is it that our bee journals do not find more to say about this matter? If they are the proper and legitimate representatives of the beekeepers and are working in their interests, will they not cope with these subjects and render their best judgment upon them? They need not fear injury if they are in the right, and yet they know full well that to bring this matter properly before their readers means reform which they seem to dislike.

To-day, nearly the whole work of educating the beekeepers is under the control of the few who conduct the bee journals, while the associations, the true representatives of the will of the majority are subject to the dictation of these journals. Indeed, whenever the deliberations of any association do not please the editors of these journals, the proceedings are suppressed and never

reach the beekeepers and these associations are branded as a "ring of noisy, boisterous fellows, whose only wish is to create disturbance."

Is this not monopoly of the rankest kind? These are great questions which we hope that our readers will carefully study and decide upon at our conventions.

It is not our wish to injure any journal or misrepresent it, neither to say that its editor has no right to publish such a journal; as this would be unkind and neither right nor just, but the question with us is what course will benefit the largest number, and when we have decided upon that we mean to speak so loud and plain that every beekeeper will hear and understand it.

And we hope and trust that at Rochester, New York, the beekeepers may look into this matter and organize the National Association so thoroughly that we shall be able to cope successfully with every subject brought before the beekeeping fraternity for consideration.

In order that our motives may not be misconstrued, should we be so fortunate as to take part in the deliberations of the convention at Rochester, we wish to state here and now that in our opinion the only proper way for associations to dispose of their reports is to have them printed in pamphlet form and furnish them to the beekeepers at a price that will cover the cost of publication; we advocated this at the N. E. B. A., but they were not prepared for it and the result was that the reports were given to the "Api" for publication, but we hope that the National Assoc. will prepare to publish its own reports.

We mean to keep this matter before the beekeepers until they take action upon it and our greatest reason for accepting for the APICULTURIST the honored position as the official organ of the N. E. B. A. was but to aid in working out this problem and advancing apiculture.

We might perhaps consider that we were on the wrong track were it not for the company that we are in, and when we find the masters of apiculture rallying about us one by one and endorsing our position we feel certain that we are in the right, and while this is so we shall go on and on until our work is done.

We may not always advocate the best means for a remedy but the APICULTURIST is open for candid discussion upon every subject pertaining to apiculture, and it is not our fault if these matters are not discussed.

Friend Pond has touched upon an important question, and here let us say that we doubt if there are many *pure* Italians in the hands of our supply dealers or queen breeders; and indeed, if all the dealers were to meet together, we think that but a small minority would be able to tell us of what race or cross a few of the specimens are that we have preserved in alcohol.

It is very important that we have "standards" where we can in connection with apiculture, and when all of our associations are willing to work wholly for the good of the majority then these matters will be attended to.

BEE NOTES.

It is now time for our northern beekeepers to think of the coming winter and begin to prepare the bees for the same.

Look over and replace all old and worthless queens; you have had an opportunity to test those that you have and should not winter one that has produced lazy workers. See that you have plenty of honey for winter stores for the bees, as it is quite unpleasant and unprofitable to find in early spring that your bees have perished for want of food. Do not permit your bees to depend upon late fall honey, as oftentimes such honey is too thin and of that nature which causes it to sour or sicken the bees when eaten. If you have not enough honey for stores, feed the bees with sugar syrup using about one quart of water to four lbs. of sugar and using a "Mason fruit jar" feeder like the one described in "Alley's Handy Book" which we think is a very simple and handy one. To make it, cut out a small round piece of tin which will just take the place of the glass cover, and punch say twenty holes in it with a brad awl. If you have on hand plenty of basswood or clover honey and can use it more economically than you can to purchase sugar, feed that to them after regulating the size of the brood chamber, and always do this feeding early so that the bees may have plenty of time to seal it all before cold weather arrives. Keep bees as nearly in a natural condition as possible. We have one colony in an "American" hive that has stood under an old pear tree for about nine years and never yet has a colony died from that hive or been troubled with dysentery or anything of the kind, and they have thrown about one swarm per year and averaged say twenty lbs. of box honey per year. This colony has never been examined (having the combs removed), and never has been removed from the stand in summer or winter; neither has it been packed. We think that this shows that artificial manipulation of bees generates disease and causes losses. Now, we would repeat "always conform as closely as possible to the natural laws that govern bee-life, if you wish success."

If you use sawdust with which to pack your bees, do not wait until you want to use it before securing it; the better way is to get the sawdust and spread it upon old boards in the attic of the barn, beehouse or shed and let it dry; the older it is the better so long as it is dry and clean. A good chaff cushion is the best thing with which to cover the top of the brood nests and we prefer two or three inch chaff division boards as there is no loose sawdust or chaff to scatter about and because they are so handy. Look out for robbing about this time; do not leave any honey laying about where the bees can find it. Do not leave surplus section honey in the hives for any length of time after it is sealed over.

Always watch for foul brood when examining the combs, (for instructions see reports of N. E. B. convention in our Feb. and March Nos.,) as a little caution may save much trouble. During the month of September is a good time to rear a few queens to supply the place of old ones. Remember if honey is scarce and you are rearing cells it pays to feed your bees just a little to keep them busy. Also, if you are running fertilizing nuclei, they should be fed during periods of scarcity, or else they are liable to swarm out.

Do not be in a great hurry to rush your honey on the market; the crop is not very large and it will only depreciate prices to force the

market too early. If you want the *best* market prices for your honey take great care in grading and shipping it. (Mr. House in "Alley's Handy Book" gives some first-class directions for the grading of honey.) If you are in the habit of wintering your bees on summer stands and find that during the winter the water stood around the hives it will be well to look out for this and arrange for better drainage, because if the bottom boards of the hives are cold and wet, it imparts moisture to the chaff packing, moulds the combs and produces dysentery. Again, if your location is not a sheltered one and the hives well protected from winds it *will pay* to put up a fence back of the hives towards the west and north or else set out a hedge. Osage orange makes a good hedge and also yields honey.

Very few beekeepers have any proper place in which to store combs. This should not be if you have no bee house, build a comb rack in a moth-proof room in the barn, shed or house, or if these are lacking purchase one or two large dry goods boxes and fix them up so that you can hang your combs in them and keep them shut in secure from the moth. Never hang combs close together and it is well to brimstone them occasionally. There is a great deal more that might be said, but if any of our readers in their experience with their bees find things that puzzle and vex them just remember that we stand ready to help and advise you, and we should be pleased to know your experiences as they might help others.

If you have many partly filled sections, it is better, as a rule, to either extract the honey from them and then let the bees clear them up or else place them outside the division boards inside the hives or on the tops of the frames and let the bees carry the honey into the brood chamber. This will help furnish stores to colonies that have not enough honey.

CORRESPONDENCE.

FRIEND LOCKE:

MR. Daniel Howard, of Beaver Dam, Wis., who went to Palestine last fall to obtain some Holy Land queens, arrived at my place Aug. 7th with but twelve queens of the 175 with which he started. When Mr. H. was at my place last fall, and on his way to Palestine, I described to him my plan of shipping queens from that far distant land to this country. As he could not obtain just such boxes (in Palestine) as I advised him to use, he was obliged to do the next best thing; and he made some boxes that would hold two queens each. Each box had four compartments; two for the bees and queens and two for the food ("Good's"), of sugar and honey mixed.

Mr. Howard's inexperience with the nature of this food was the cause of the loss of the queens. While on board ship, the food gathered moisture which rendered it "too juicy," so that it ran in among the bees and daubed them, causing their death. Not one living worker bee was to be found among the lot, the twelve queens being the only survivors. These queens all looked alike in color and size. They are not yellow but striped with a very bright orange color on the under side of the abdomen. They had been confined so long in the boxes (forty-five days) that they looked very much like black wasps. Upon the arrival of Mr. H., I immediately took the queens in hand, and introduced them to the bees in my small fertilizing nuclei.

They did not increase in size very much for the first three days. On the fourth day I could see that they were intending soon to commence to lay. On the fifth day one queen had deposited a few eggs. At that time friend H. was in Ohio, and telegraphed to me to send him eight of the queens, he having taken two of them with him. This left but two of them on my hands, and both of these are depositing eggs vigorously. The one that was introduced to a full colony laid some drone eggs the first day and there is now a large quantity of capped drone brood. As soon as this brood is capped, I shall commence rearing Holy Land queens from this imported stock. These queens were bred by the Baldensperger Bros., at Jaffa.

Now note what friend H. says regarding the working qualities of this race of bees.

"With but between fifty and sixty colonies of bees, they have 5200 lbs. of honey gathered in sixteen days during the height of the season, besides increasing the number of the colonies considerably.

I am a lover of the Holy Land bees and can show some of the largest colonies of this race that can be found in this country, and they are so much superior in every quality to any of the others, that I expect soon to see them universally adopted.

HENRY ALLEY.

DEAR SIR:

I HAVE been trying to find time for the past month to write an article for your journal, but on account of the very busy season at the bank, I have been unable to do so. Even my most important correspondence is sadly neglected, and my answers to long and friendly letters are contained in a few words on the back of a postal card. The subject I have in mind is one of great importance to honey producers: it is "Feeding."

Everywhere that I have tried to introduce honey I am met by the question, "Do you feed your bees?" and I have to answer "Yes," and then I have to explain that I do not feed during the time that honey is being gathered, also my times and method of feeding, and much more with which I will not weary you. The trouble is, so many beekeepers feed so heavily while the bees are storing honey, that the so-called "comb-honey" is half syrup ("*a la* Cotton"). Grocers know this and so it is next to impossible to get a fair price for honey, even if you are lucky enough to make a sale.

The only way that I see to get out of this fix that we are in, is to feed nothing but *pure honey* (diluted with water) during the honey season, and only use sugar food in early spring and in the fall. I have had to come to this, and now I can certify as to the purity of my honey; I *never* have fed in the summer unless there was a time that bees could not get enough to live on, and then barely enough to keep them from day to day. *I* was always sure that my honey was pure but now I can convince *even a grocer* of that fact.

If I do not get a chance to write a short article on the subject before the time for publication of the next "Api" can you not say something about it in the "Notes?"

Bees are doing well here considering the amount of cold, windy and rainy weather we have been having, but now it seems to have started into a term of hot and damp weather; if so, bees will "boom." Hoping that you are in good health and spirits I remain fraternally yours,

A. C. MILLER.

Providence, Aug. 4, 1884.

BOOK NOTICES AND REVIEWS.

Mr. L. C. Root has kindly sent us a copy of the late revision of "Quinby's New Beekeeping" and we are pleased to notice a number of important changes which greatly improve the work.

For a number of years we have been conversant with most of the modern works on apiculture and feel justified in stating that, in our opinion, "Quinby's New Beekeeping" stands at the head of all works on practical apiculture published in the English language, as a safe and reliable guide both to the novice and expert.

This work is wholly original and contains the results of fifty-five years of practical experience with keeping bees for profit.

Its first author, the lamented Quinby, was one of the noblest and best men who ever graced our profession and one who never adopted or gave to the world a single method or invention until he had thoroughly tested it and proved that it was worthy of adoption; who earnestly and bitterly opposed every attempt made to defraud the beekeepers or injure their interests, who not only proved by practical demonstration that beekeeping with the box hive and in a good locality was remunerative, but also was one of the first to test thoroughly and adopt the movable frame given us by our Langstroth, proving to the world by those tests that the movable frame hive opened up great possibilities for the future of apiculture; who was the founder and for many years the President of the North Eastern Beekeepers' Association which has a world-wide reputation for sound, reliable judgment upon all questions pertaining to apiculture; and, lastly, one who justly earned the proud title of the father of practical apiculture in America.

After father Quinby published his first work, "Mysteries of Beekeeping Explained" he fully intended to revise it thoroughly, but although he lived many years after that time and saw apiculture, his chosen pursuit, becoming one of the national industries, yet he was called to his rest by a loving Heavenly Father and the labor of compiling the teachings that he gave to the world devolved upon Mr. L. C. Root of Mohawk, N. Y., one whose reputation both as a beekeeper and as a man is too well known and established to need mention here.

Mr. Root almost from his early boyhood was the pupil and companion of father Quinby and was better fitted for the labor of revising Mr. Quinby's former work than any other, and here let us state that Mr. L. C. Root has performed the duty of love left him by his father Moses Quinby nobly and well, endeavoring in an unselfish and self-sacrificing manner to lose his own identity and give to the world as nearly as possible the same work that father Quinby would have given them had he lived.

Mr. Root will pardon this reference to his labor of love which we make wholly unbeknown to him, as a slight appreciation of the good that he has conferred upon apiculture in so doing.

Further, we wish to state that we have reviewed this work in this way, because for a number of years the impression has been forced upon the beekeepers that father Quinby was merely a successful box-hive beekeeper, living back in the dark ages prior to the introduction of the frame hive which brought to us the light of modern apiculture; which impression is utterly false and without foundation and when, at the late convention of the North Eastern Beekeepers' Association, an extract from an

editorial in one of our journals[1], to the effect that "Moses Quinby never used the frame hive till Mr. L. C. Root entered his employ," was commented upon by Rev. Mr. Van Slyke, of Syracuse, N. Y., who pronounced it utterly false and sustained his assertion.

There are those in this world who, when a man is powerless to defend his own rights, take advantage of these circumstances but truth and justice although they sometimes move slowly, yet are sure sooner or later to bring to light all the actions of the lives of public men be they good or bad, and as apiculture advances we shall become more and more acquainted with the value and worth of the teachings of Moses Quinby and more fully aware of the injustice that has been done him and his noble co-worker, the Rev. L. L. Langstroth.

NOTES AND QUERIES.

For many years thoughtful and prominent apiarists have given considerable attention to developing a long-tongued race of bees, which by the way is just as feasible as developing races of short- and long-legged sheep, etc. Mr. Martin of Hartford, N. Y., has, we believe, come the nearest to perfecting an instrument for testing the length of the bee's tongue; but this was not accurate and after studying upon it for several years we have at last completed one that is graduated so as to give the length of the tongue in ten thousandths of an inch. We should be pleased if any of our dealers or honey producers, having queens whose workers are valuable honey producers, would send us some bees from such queens. We will test them, put them in alcohol and publish a description of them in the Journal. Here is a good chance for Mr. Heddon's hybrids to take the lead. I hope that our readers will not forget this as it is an important matter and one that will figure largely in the queen-breeding of the future.

[1] See Reports of the Convention, Feb. and Mar. Nos. of this Journal, p. 41, Vol. II.

We have just learned of the death of Mr. F. M. Cheney of Fulton, N. H. He went to Tennessee last spring to take charge of an apiary for H.E. Andrews, and died about the middle of last month of malarial fever. We extend our heartfelt sympathies to mourning friends.

We regret to learn that Mr. J. T. Wilson's house was burned early on the morning of Aug. 5, at Mortonsville, Ky. He says that many beekeepers are owing him, and with this calamity he is crippled financially. Those who owe him should at once send him the necessary funds to help him in this, his "hour of need."

An exchange suggests the following: "Strew tansy around the floor of the honey room or among the hives to rid them of the ants."

We clip the following from Science Record."

— In a recent number of Pfluger's Archiv, Dr. K. Mullenhof gives an account of the way in which bees form the honey comb, which is especially interesting from the fact that by observation of the act, the author arrives at the same results as did Dr. Wyman from a study of the comb, and that the hexagonal structure, so economical of material is not the result of any mathematical instinct on the part of the bee, but rather a mechanical and mathematical necessity arising from the mutual pressure of adjacent cells.

The next annual session of the North American Beekeepers' Association will be held in the city of Rochester Oct. 28–30, 1884.

At the last meeting of the North Eastern Beekeepers' Association, a committee of competent persons was appointed to secure a hall and to make other necessary arrangements.

A full programme will be prepared and a general good time may be expected.

C. C. MILLER, *Sec.*

L. C. ROOT, *Vice Pres.*

Mr. Arthur Todd, Vice President of the Philadelphia Beekeepers' Association kindly sends us the following list of prizes to be given at the State Agricultural fair to be held in Philadelphia from the 8th to the 20th of September. The efforts of this association are praiseworthy and have been crowned with abundant success, this being the first instance (in this country at least) where the agricultural society has placed the management of the apiarian exhibit at the fair, in the hands of the beekeepers' association. This will give courage to other associations so to conduct their proceedings as to command respect and attention from our agricultural societies. There is an extensive field of labor here and we hope that it will be improved.

We quote as follows.

EXHIBITION, 1884. — LIST OF PREMIUMS.

Class 35. — Bees.

In charge of the Philadelphia Beekeepers' Association.

Committee of coöperation: Dr. Henry Townsend, President, Arthur Todd, Vice Pres't, F. Hahman, Sec'y, T. C. Davidson, Librarian, and Mrs. Thomas, and Enon M. Harris.

BEES.

COLLECTIVE BEEKEEPERS' EXHIBIT.

No bees can be entered for competition unless they have been in possession of the applicant for at least one month.

PREMIUM LIST NO.

550. Colony of Italian, Cyprian or Syrian bees, in working order, and in observatory hive with movable frames, best, $10.

551. Most varied exhibit of foreign bees or their descendants, having the most distinct markings according to race, $10.

553. Native or black bees in an observatory hive with movable frames, best exhibit, bronze medal.

555. Queen-rearing in nucleus observatory hives, best exhibit, silver medal.

556. Queen bees, any races, caged so as to be capable of observation with retinue of bees, best and most extensive collection, silver medal.

Class 50. — Honey.

All honey must be the product of the exhibitor's bees.

848. Comb honey, best and largest collection, bronze medal.

848a. Comb honey, best six two-pound sections or best twelve-one-pound sections, diploma.

849. Extracted honey, best and largest collection, bronze medal.

849a. Extracted honey, best twelve two-pound or best twenty-four one-pound glass jars, diploma.

Class 79. — Hives.

1600. Movable frame hive for general purposes, summer and winter, best, bronze medal.

1600a. Hive manufactured of straw, fully equipped with movable frames and sections, bronze medal.

We just learn of the death of D. S. Given; and, although we are unable as yet to give particulars, yet we extend our heartfelt sympathy to the mourning ones.

QUESTIONS AND ANSWERS.

QUESTIONS BY THE EDITOR.

1. What are your views on the "Priority of Location" question?

2. Can the disease of "foul brood" be caused by large quantities of chilled brood left in a hive containing a weak colony of bees?

3. What do you consider to be the origin of foul brood?

4. What is your opinion regarding the reversible frame?

5. How do you think that pollen, mixed with winter stores of the bees and consumed by them, affects the bees?

6. What is the best method of sheeting wax for the "Given" press, so that the sheets may be of *uniform thickness* throughout, and either eight or ten feet per pound as the beekeeper may choose?

7. Is there any better method of purifying wax than repeated meltings and allowing it to cool slowly so that the sediment may settle and be removed?

8. Will melting by the sun improve the color of commercial beeswax?

9. Will this injure or harden the wax for comb foundation?

ANSWERS BY J. E. POND, JR.

1. The honey-bee is no respecter of person or property; it gathers its stores regardless of the rights of any one save its own. Nectar found within the radius of its flight from home is appropriated by it regardless of the ownership of the soil on which it grows. There is honest competition in all trades. Why should A, owning a one-fourth acre section, claim all the honey within the range of his bees, simply because he happened to be the first one to keep bees in that section? Has not his neighbor B, who owns hundreds of acres, and who has made the locality his lifelong home, the same rights as B, who is a new comer? or must B, if he desires to keep bees, leave home and friends in order to establish an apiary? My own opinion is that there is no right in the matter, either moral, legal or equitable, that A can gain simply by priority of occupation.

2. I do not believe it can. A man by the name of C. J. Robinson claims it to have originated in something such a manner, but if it could originate spontaneously as indicated in the question, the occupation of beekeeping would at once prove a lamentable failure, all over the world.

3. It is easy to guess, but theoretical answers are of no value in a case like this. It is proof we want, and I have no desire to experiment in this direction. That it is a fungus of the most deadly nature to our bees is well known, and I sincerely hope that none of the readers of the "Api" will ever have a nearer acquaintance with it, than they obtain in the answers to the question.

4. The reversible frame will accomplish the results claimed for it, but until some inexpensive arrangement can be made by which we can use it in connection with our ordinary hives and frames, I hardly think it will pay to fit up for and with it.

5. I do not think that a natural food of the honey bees, when pure, can have any injurious effects when consumed by them; at least it never has in my own apiary.

6. I have had no experience, so cannot say.

7. None that I know of. It should be melted in quite a quantity of water, when the sediment will settle on the lower part, and can be easily removed therefrom.

8. I have had no experience.

9. I do not know positively, but should judge that it would tend to harden it. Wax is bleached by the action of sun and air, and wax when bleached is ordinarily harder than it is when crude.

ANSWERS BY G. W. DEMAREE.

1. It would require more space than would be suitable to this department to give my views in detail on this subject.

I utterly repudiate the "spirit" manifested by some who have written on the subject. There is not one case in a thousand where a beekeeper, who makes the production of honey a specialty, would be fool enough to select and move to a field already occupied by another. The danger to the prosperity of the specialist comes from an entirely different source, hence it is weak and silly to talk about systematic "war" of forces, etc.

Let me illustrate, and I do so the more particularly because I regard this matter of a "clear field" as one of the greatest of all factors which go to make up good success. But now for the illustration. I was brought up within eight miles of my present home. Well, when I moved here fifteen years ago, I did not see but *one bee* on the white clover the first two seasons after locating here. And by inquiry I could learn of but one old box hive in the ordinary flight of my bees. Of course, I had the right of preëmption, eh? But I really came here to practise law, and hence did not think of keeping bees as a business. I commenced keeping bees as a study and pastime, and

the bees began to pay, and when the people about me saw the shipments of honey going away to market, they became gradually enthused, and began to "get bees"—yes, bees of every description—"tag-rag and bobtail"—*business bees.* My apiary built up steadily, and gave reasonable profits from year to year, and the enthusiasm among my neighbors outgrew my bee business, till the country is literally full of bees, all in the sound of a farm bell. These people know precious little about bee culture, but all the same, they have got the bees, and my field is likely to be overstocked, if such a thing can be done, and I presume it is not only possible, but probable that it can and will be done. Well what am I going to do about it? Well just nothing at all. My apiary will stand at the head in way of improvements, and will be pushed steadily on as long as the business pays, and if the country becomes overrun with bees, my apiary will be moved to "new fields," with pastures "uncropped." My views are that this problem however important, must "grind itself out," just as other business matters are obliged to do. I could not drive out the farmer who "keeps bees," and "tills his broad acres," if I wanted to, and would not if I could.

2. I think not. If it could be produced in this way, I should think it would appear occasionally almost everywhere, where the climate becomes cold enough to chill brood, at times. There have been plenty of cases where brood has been chilled in central Kentucky. But not a case of foul brood was ever known to exist so far as I have been able to learn.

3. I have no experience with the disease.

4. My opinion of reversible frames is that they are not necessary to the success of the apiary. In my opinion what may be gained by reversing frames, may be accomplished in other ways requiring much less labor and worry.

5. I have no reasons to believe that mature bees consume pollen as a diet. In fact, pollen must be elaborated with honey and water before it is possible for bees to swallow it, and this they never do only when preparing it to feed the larvæ. Bees will most probably winter better in very long cold winters, without the presence of pollen as no breeding will occur in that case, but that it is not the "cause" of dysentery is proven by the well-known fact that it never causes the disease in moderate climates. I have never seen a fatal case of dysentery in all my experience.

With us, plenty of winter stores, honey and pollen, is essentially necessary to strong colonies in the early spring.

6. Have no experience in this line.

7. I am satisfied that there is not. I should be glad if some one would give a cheaper method equally as good.

8. Yes, decidedly.

9. No, provided the wax is not left in the sun any longer than is necessary to separate it from the dross.

ANSWERS BY L. C. ROOT.

1. We should respect the rights of any person who has established a location. There is plenty of good, unoccupied ground all over the country. Except in extreme cases there is no excuse for intruding upon the ground of those already established. We should not fail to recognize the rights of residents to establish a home apiary. If I have an apiary of long standing in a location away from home and a resident near it desires to establish one, I think it my duty to yield the location to him. Usually in such cases, it is only necessary for all parties to use a little good judgment when satisfactory conclusions may be reached.

2. I think not.

3. To be just exactly honest about this question, I have to say that in my opinion this is one of the mysteries of beekeeping which has never been explained. The indications are that, at a certain stage, after being capped over, the brood is killed and poisoned by some insect, and that after a certain period of time, its destroyer overtakes it and the disease disappears as mysteriously as it appeared. The great question of importance is to be able to detect the very first appearance of it, care for it and prevent its spread in the safest and most economical way.

4. It has some advantages, yet the masses will not avail themselves of them.

5. I am very far from being one who believes that a liberal supply of pollen tends to unsuccessful wintering. From very close observation, I have come to an exactly reverse conclusion.

6. I have had no experience.

7. I know of no better. Ask J. Van Deusen & Sons and Chas. Dadant

& Son. So far as I am informed they are the best authority in the world on that subject.

8. It will whiten it, but whether it is an improvement or not, I am not certain.

9. I am not certain. These questions in regard to wax and foundation should be answered by those who make a specialty in that line.

Mohawk, N. Y.

ANSWERS BY E. E. HASTY.

1. I think that the precise rights in the matter are very difficult to define. It is easy, however, to specify some actions that would be wrong. It would be wrong for me to rent a half acre of ground close by Mr. Heddon or Mr. Doolittle, and start a big apiary there. On the other hand it would be manifestly wrong for me to carry on secret hostilities against neighbors who simply desire to supply their own tables with honey, or against neighboring farmers who begin bee-culture and keep small apiaries, not much in excess of the pasturage of their own land.

2. Both yes and no. In regions where foul brood has existed before, and where its germs, in a semi-dormant condition, are scattered about everywhere, yes, in my judgment. In pure uncorrupted territory it is, I should say, impossible; as much so as it would be for a lazy and lousy farmer, banished to the moon, to introduce Canada thistles there.

3. Shrouded in primeval mystery, like the first origin of cholera, small pox, and other plagues.

4. I have pondered earnestly on the reversible frame, and have decided not to adopt it in my apiary. Its professed advantages are, 1st, power to make the bees remove their old store of honey to the sections. 2nd, power to keep the brood nest and the sections nearer to each other. 3rd, power to compel perfect combs, fastened to the wood all the way around.

I object, 1st, that forcing into the sections a lot of willow honey and dandelion honey, and other inferior early stuff is going to injure the honey market more than the gain in weight will do us good. 2nd, if one selects and cultivates a strain of hybrids "for business only," he will find himself possessed of bees so perfectly willing to enter sections and store honey, whenever there is any to store, that such a device is superfluous. Reducing the number of frames below to match the laying proclivities of the queen is, I think, sufficient. 3rd, I don't believe that old combs, rounded off, and thickened in their cell walls by dirt and cocoons, can be brought up perfect by merely reversing them. I fear that an unendurable amount of fussing would have to be done. It might be very nice to turn over newly built combs and have them finished; but I decide that the game will not pay for so expensive a candle.

5. Better off without pollen, doubtless, in the present state of apicultural practice. But I have strong hopes that the wintering problem will eventually be so fully mastered that a moderate supply of sound, unfermented pollen will bring no special danger with it. I suspect there has been a great invasion (potato-bug like) of some microscopic organism affecting the pollen grains of flowers which has made them less wholesome for bee food than used to be the case twenty-five years ago. I suspect, moreover, that some autumns these injurious organisms are much more plentiful than others.

6. No experience in foundation making.

7. Don't know as there is. In preparing wax for market, I agitate it while melted in contact with clean hot water, thus washing it as it were.

8. Think it will somewhat.

9. If left exposed only a short time I think the damage will be slight. This is a matter of opinion, not of experience, with me however.

QUESTIONS BY W. J. ZINK.

1. What is the largest increase that I can make per colony and be on the safe side in order to increase and Italianize my apiary next season, having one Italian colony from which to rear the cells or young queens?

2. How and by what method?

3. What is the matter with my hatching bees? A great number of them die prematurely, some have a white skin under their wings, and older bees gnaw many of them out of their cells. The eggs were laid in two year old combs, in which the moth had been working.

ANSWERS BY THE EDITOR.

1. This depends on the experience that you have had in beekeeping, the season, locality, etc., etc.

If you are a beginner, I would not advise more than two new colonies,

or perhaps three at the most. Experienced beekeepers can, with the use of comb foundation, stimulative feeding and careful management, increase to five or even more.

2. This will depend largely on the number of colonies you have with which to commence operations. One safe and very satisfactory method is this, just stimulate your colonies judiciously in the springtime, so that they will build up rapidly, and also contract the brood chambers (as per directions in back numbers of this Journal) and when the colonies have been built up by the addition of brood combs or comb foundation, until they are strong, take from each colony (if you have five to eight) one comb of hatching brood from each, place them in a new hive with adhering bees and give them, if possible, a young laying queen if not a good queen cell, placing the new hive in a new location. After the old bees have returned home, as many of them will, the new colony should be examined, and if there is more brood than the bees can cover, remove the extra combs and contract the brood chamber. This may be repeated just as often as the strength of the old colonies will permit. Remember that you gain much time by giving the new colonies laying queens, also replace the combs taken from the old colonies with empty ones, or full sheets of comb foundation. If you have but two or three colonies you will be obliged to manage differently, and if your colonies are in box hives, transfer them early in apple blossom time, and then proceed as per above.

3. The moth worms have been at work with your brood, and they travel about under the cappings of the cells, over the heads of the immature brood. The bees, in their endeavors to dig them out, uncap much of the brood which never develops; hence you will find many young bees with wings only partially formed, and with a white skin adhering to them. Italianize your bees and keep them strong; melt over the affected combs, and when you store any combs away, never place them so close together that they touch, and it would be well to brimstone them occasionally.

The following questions asked by Mr. J. A. Hopkins, and answered by Mr. Muth, were kindly sent us by the latter, and we favor our readers with both the questions and answers, and here we would state that those who have not read the reports of the last convention of the North Eastern Beekeepers' Association given in our February and March numbers, should secure a copy and read them. We can furnish the reports (forty-eight pages, mostly brevier) for twenty-five cents, which is very reasonable considering the value of the matter contained therein.

1. I think it is admitted that bees cannot carry the infection *on* their bodies, hence is it safe to introduce a queen from an infected stock to a healthy one, after caging her for a few hours? If not, why not?

Ans. Foul brood is of vegetable growth, a fungus and spreads by spores. Running over an infected cell or cells, bees or a queen may drag along on their feet one or more spores, too small to be seen with the naked eye, and if dropped on a larva, this will die, and in due time, throw out spores of its own. These spores are harmless unless they come in contact with a larva. Queens from diseased colonies are as dangerous to spread foul brood as any part pertaining to that hive or colony, as dangerous as your fingers or knife with which you handled the colony.

2. If the infection cannot be carried on the body of a bee can it be communicated through *empty* combs any more?

Ans. Spores of foul brood may be dropped anywhere inside of or about the hive, and are harmless until, in some manner, they are brought in contact with larvæ. Combs, empty or filled, from a diseased stand, offer as good a means for infection as an empty hive.

3. If salicylic acid is a destroyer of the germs of foul brood, then cannot *empty* combs be saved by spraying with it and be made safe to use in healthy colonies?

Ans. I can prove to the satisfaction of anybody that salicylic acid destroys the germ of foul brood. Spraying is safe, if every part of comb and frame is moistened with the acid. But, if you skip a spore in a cell or a corner of the frame, foul brood will take a start again in due time, *i. e.*, whenever that spore is brought in contact with a larva.

4. A colony having ten frames and an extracting top or super, with ten similar frames, is discovered to have a few cells of foul brood. Cannot these combs be extracted and the top separated enough from the brood chamber,

so that the combs will be cleaned out and be carried down, and then these combs be sprayed as above and be saved? Then if the lower lot (which were also extracted from as clean as possible) by putting back of division board, etc., part at a time, be emptied same as the others, clean from honey and brood, then the bees brimstoned, the comb and hives disinfected, would they not be safe to use? A set of good brood combs are worth more than the bees at the close of the honey season.

Ans. Combs from diseased colonies whether they have been in the brood or honey chamber are always dangerous, should not be allowed to lay about at all, but be rendered into wax at once. In such cases, I extract the honey first and disinfect the extractor by spraying when done.

5. Does foul brood ever affect queen or drone brood as well as worker?

Ans. It does. I have seen diseased worker, drone and queen larvæ.

6. Do you think the disease is communicated in any other way than through the food? If so, why cannot bees carry it on their bodies the same as it could be carried by old combs, hives, etc.?

Ans. Foul brood is imparted to healthy colonies, through the food, but principally by combs, hive and by bees carrying the spores on their bodies.

7. A lot of comb from an infected colony is rendered into wax in the "Swiss" wax extractor with the aid of steam at, say, 40 lbs. pressure; is the *honey* that runs from the Extractor, or the contents of the comb basket after so extracting, dangerous if left where bees can have access to it?

Ans. The honey running from the wax extractor, as suggested, has not been exposed to sufficient heat to destroy the spores. I should never let bees have access to it.

8. Are the dead bees from an infected stock that have been brimstoned dangerous if left where other bees can have access to them?

Ans. They are dangerous without any doubt.

QUESTIONS BY CHAS. H. SMITH.

1. Would you advise extracting all of the honey from colonies in the fall and substitute granulated sugar syrup for winter consumption, when the honey sells for double the cost of the sugar?

2. Will bees winter better on sealed sugar syrup (when stored in combs containing no pollen) than on late gathered honey?

Pittsfield, Mass.

ANSWERS BY THE EDITOR.

1. Provided you understand how to do it properly. It is not well (we think) to work bees too hard *late* in the fall; but if the honey is extracted early, and the sugar-syrup food given to them while they have plenty of time to evaporate and seal it properly, all is well.

2. To this question we would answer yes, and yet we would not advise keeping the brood chamber free from pollen; we think that most trouble comes from poor honey and a condition of disquiet among the bees (from various causes) during the winter, than from the presence of pollen.

The following questions and answers being handed to us, as given below, we present them to our readers.

Solon, Me., Aug. 16, 1884.

DEAR SIR:

In order to ascertain what would be a fair market standard for extracted honey I have written to a number of parties and thinking that perhaps your readers might be benefited by them I have sent them to you.

For present purposes I looked upon honey as practically a solution of uncrystallizable sugar in water which would keep without fermenting if dense enough, and what density was my query. With questions concerning the flavor and the effect of flavors and acids naturally present in honey, upon the keeping of it I didn't at this time trouble myself. I might come to that hereafter. The quantity of oily or ethereal flavoring substance is probably too small to have any influ- whatever. The presence of pollen and nitrogenous matters of that class would induce fermentation in a too dilute solution. And the presence of acids would influence and probbly determine whether and when granulation would take place. Sugar in solutions dense enough prevents or sufficiently retards the action of ferments and acids and that brings me again to the questions, how dense? what specific gravity? what degree of the saccharometer? what weight per gallon? In sugar refineries when the syrup reaches a certain degree of the saccharometer, it is run off for crystallization. I wanted to suggest that when

that honey was evaporated to a certain degree it should then be filled into cans and jars for market at retail — in other words it is "ripe."

TURNER BUSWELL.

What do you consider to be a fair standard weight for both producer and consumer, to which their honey should be brought by cruing?

Can you not give, in some article, the best method of curing unripe extracted honey on large and small scales so as to suit the wants of all classes.

Cincinnati, O.

All the qualities of our northern honey that have come under my observation range from 11½-12¼ to the gallon. Clover and poplar are, perhaps, heaviest on the scales and when weighed with the saccharometer, next come perhaps catnip and our fall honeys. Linden seems to be lightest. I had southern honey weighing only 11¼ lbs., but good qualities in the south come up to 12 lbs., like ours. You should not take in consideration thin, unripened honey when making up the average weight, as the difference depends on the amount of water it contains, an addition we don't want. I consider 12 lb. to the gallon a fair average weight of honey.

Allow me here to state that I consider honey ripened when it keeps; *i. e.*, when it retains its flavor and does not expand when it granulates.

The fact of honey being capped is no proof of its being ripened as we often extract very thin honey from capped cells. It is also a mistaken idea that the flavor is improved by allowing the cells to be capped. Honey gets its flavor from the source from which it is derived. From nothing else. It ripens in an open vessel better than in a bee-hive providing the vessel stands in a warm, dry place and enough surface is exposed to the air. A barrel with the bung out would allow of no evaporation, while a barrel with a head out and standing on end would answer the purpose. The length of time for a thorough ripening depends on the consistency of the honey but the longer time is given it the better the quality.

CHAS. F. MUTH.

Dowagiac, Mich.

A very good marketable article of extracted honey, that is, very well ripened, will weigh twelve pounds to the gallon. Honey of any consistency rarely keeps its flavor as nicely in any other place as in the comb.

Even at 12 pounds per gallon, honey will usually go far enough toward fermentation to take on a twang not often found with comb honey. If you wish your honey to remain of the smooth, oily flavor it contained when extracted from sealed combs, it should not fall short of 12 pounds per gallon, and 12½ is preferable. Regarding ripening honey; I consider leaving the honey in the combs until it is ripened, as the best way to get it in that condition. For those who produce it on a large scale, I think the laws of nature afford a cheaper method; but, as yet, I know of none sufficiently formulated than is in use by beekeepers in general.

JAMES HEDDON.

Hamilton, Ill.

Clover honey even if ripe has more bulk than fall honey, but the difference don't amount to ⅛. Thus it is very difficult, if not impossible, to give a rule for the evaporating of honey, in regard to its measurement. Any experienced hand can tell at a glance whether honey is ripe enough. As a rule, honey that will not granulate thoroughly when it granulates at all, is not ripe enough.

Basswood honey is the hardest honey to ripen that we know of.

DADANT & SON.

New York City.

Weight of extracted honey ranges from 11 to 12½ to pounds the gallon, standard weight for producers and consumers.

THURBER, WHYLAND & CO.

New York City.

White clover, basswood or buckwheat honey generally weighs from 10¾ to 11¼ pounds to the gallon. Cuban honey weighs about 10 and 10½; if fine quality 11 lbs. Florida orange blossoms and California white sage weigh about 11 to 12 lbs. Have never handled any honey that weighed less than 10, or more than 12 lbs. per gallon.

MCCAUL & HILDRETH.

San Francisco, Cal.

Honey varies a great deal in weight per gallon in this section, some being a good deal heavier and thicker than other lots. We think that about 12 lbs. per gallon is a good, fair average, for pure honey, either candied or clear.

GEO. W. MEAD & CO.

San Francisco, Cal.

Extracted honey varies from 12 to 13 pounds. Should consider 12 lbs. the standard weight to which honey should be brought by curing.

STEARNS & SMITH.

Kansas City, Mo.

Honey varies from 10½ lbs. to 12½ the average being about 11¾ lbs.; should consider 12 lbs. as a fair standard.

Extracted honey, I think, expands in body a little by warmth. Honey weighing less than 11 lbs. I consider unmerchantable.

JEROME TWICHELL.

Boston, Mass.

Honey varies from 12 to 13 lbs. Should consider 12 lbs a good average.

BLAKE & RIPLEY.

Cleveland, O.

Extracted honey varies from 11 to 12 lbs. We should consider 12 lbs. a good average. The thickest sugar syrup we have ever weighed was 11 lbs. If honey is pure and free from sugar it weighs 12 lbs. when fully ripe. We have personally tested this time and again.

A. C. KENDAL.

St. Louis, Mo.

Honey in this market averages 10½ lbs. per gallon, and varies from 10 to 12 lbs. Should consider 10½ lbs. a good standard.

W. T. ANDERSON & CO.

ED. AM. APICULTURIST:

I AM a novice in beekeeping, and would like to ask a few questions.

1. When sulphur is used to destroy moth in combs does the sulphur render the bee-bread unfit food for young bees?

2. Has any one within your knowledge experimented with naphthaline, as a means of quieting bees? In the Gardener's Monthly for August, 1884, I find an article written by Dr. Thomas Taylor, in which this paragraph occurs: "Honey bees in the hive may be anæsthetized by placing about an ounce of pure white powder of naphthaline on the floor of the hive, and carefully watching the effects of the napthaline on them when the bees are asleep; the hive may be uncovered and the moths and honey removed." Again, "The common ant will not cross over powdered naphthaline if it can avoid it." I have lately been troubled by the large black ant getting into the hive, and have thought of testing this by sprinkling it outside the hive.

3. Is there any cure for the bee-dysentery when once under way? I lost a colony of Holy Land bees last spring by this disease.

I find rules for preventing it, but fail to find any directions in regard to its cure.

By answering these questions in your Journal you will greatly oblige

A SUBSCRIBER.

Poughkeepsie, N. Y.

ANSWERS BY THE EDITOR.

1. Not that we are aware of. The air seems to do away with any effects that the fumes of the sulphur may have, but some of our readers may be able to throw light upon this question; if so, we should be pleased to hear from them.

2. No. If any of our readers have tried this experiment will they please state results?

3. This is an important question and one which is not quite settled. To cure it we should advise preventing it. Prepare the bees early in the fall; give them no more room in the brood chamber than they can utilize; do not give them fall stores to winter on; do not disturb them late in the fall it only causes trouble; pack them snug and warm during winter, and be sure they are so arranged that they will not be disturbed during winter, as such disturbance will *surely* cause dysentery. As early in the spring as possible, examine all of the colonies taking first those whose appearance indicates the presence of dysentery; take away all combs that are damp, mouldy or dirty, and if the colony is strong in numbers replace those combs with those containing a portion at least, of sealed honey, but always remember that you had better contract the brood-chamber until the bees have but one comb to cover, than to leave them with too much room, and indeed, it is better to resort (in early spring) to stimulative feeding, with sugar syrup, than to leave in too many combs. Of course combs should be added as the colonies increase in numbers, and they should be kept snug and warm. If the packing about the hives that are on the summer stands has grown damp, remove it, and replace it with that which is dry. If this advice is followed, we think that there will be less trouble from this source.

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FOUL BROOD AND A NEW CURE.

BY CHAS. F. MUTH.

THE number of letters I receive on foul brood from almost every part of the country convinces me that this subject is of more importance than many of us think. It shows that this virulent disease does not only exist but that it has spread rapidly. I have some experience in the matter, and foul brood may not yet be a thing of the past with me, as a friend told me only a few days ago that his five hives on his roof in our city were foul with the disease. I have seen them since, and expect to brimstone them for him on some evening and have combs and hives burnt up before morning, so that no visiting bees next day will have a chance of taking spores home with them. His stand will be disinfected with the atomizer before I shall quit.

There is no use for any one to become alarmed upon finding dead brood in his hives, which is very often caused during cold nights in fall and spring when bees contract their cluster and leave larvæ exposed. The color of the larvæ is white with a dark shade occasionally, until it is removed by the bees; while from foul brood, they look brownish almost as soon as dead and the color deepens until a dark brown mass lodges on the lower side of the cells. When the attempt is made to remove it with a pin or a stick, it feels ropy, sticky, and cannot entirely be removed. The stench, of which so much has been said by different parties, does not differ any from that of any other decaying brood. But it becomes stronger as the bulk of dead animal matter accumulates. Invisible pores are thrown out from this brown larvæ and carried along on the bodies of the bees, drones and queens, running over them. A queen from a foul-brood colony is just as liable to spread the disease as any other member of that family. It would be bad logic to consider it otherwise and I had ample proofs of it in several instances when I did not wish to give up a fine queen from a diseased colony, introduced her into a healthy one and created

a new trouble. She is just as liable to transmit the disease as are our fingers or the knife we use for loosening the frames. The brown larva on the lower side of the cell dries up finally, into a solid mummy, when it will never be discovered unless by an experienced eye, and then not without an effort.

Salicylic acid destroys all spores of foul brood it comes in contact with, but does not penetrate the mummy which resembles ground coffee when scraped out of the cell. This mummy may rest harmlessly for years when honey or pollen is packed on top of it. But, when an egg is laid in that cell again, the larva softens up the mummy, dies, and foul brood takes a new start. That colony would have been cured if that mummy had not been overlooked.

Here is where the danger lies and wherefrom the many disappointments and failures emanate. It shows the danger of using again brood combs from diseased colonies, even if they have been disinfected.

There is a milder type of foul brood which, in appearance, is very much like the malignant type. It is contagious, also, but not so stubborn to overcome and caused by surrounding circumstances.

In the spring of '83, I had purchased a lot of bees from the south. On their arrival here, I found the hives full of dead brood in capped and uncapped cells. The tops of the hives were closed with wire-gauze. They had been strong colonies, but too many old bees had been left with them for the long journey, contrary to my advice to the shipper, to let all the old bees fly off before closing the hive.

It is always the old bees that create trouble in the transit. Finding themselves closed up, they become alarmed and create such an amount of heat that the brood, in all stages, may smother in spite of all ventilation. This had happened with the shipment of bees referred to. I cleaned out all combs and hives but three, which seemed to be in a less damaged condition. These three colonies became strong and filled quite a number of combs with honey, all of which I extracted and rendered the combs into wax because the dead brood in the hives was slowly but surely increasing. Uncapping some sheets, I found most of the brood dead; but instead of finding a brown dry matter under the cappings, a blackish dirty liquid ran out and very few cells had perforations. It was plain that I was dealing with a different kind of foul brood from what I had been used to. I put one colony after another into a clean hive and gave them new combs, rendered all the old combs into wax, disinfected the old hive and my three colonies are still prosperous. This, very likely, was that same kind of foul brood which my good friend D. A. Jones can cure so readily by the starving process.

It is not now my object to go again over that old ground describing all the particulars of the malignant type of foul brood, nor the

different methods by which a cure is said have been effected by different parties. Enough of it can be found in the back numbers of our bee journals and in every bee book of late. Suffice it to say that the genuine foul brood or the malignant type of the disease spreads by spores, and that salicylic acid destroys those spores whenever brought in contact therewith. Consequently salicylic acid will rid a colony of bees of foul brood if properly applied. But this proper application is not an easy job. It requires energy, skill and experience, virtues not possessed by everybody; and if half a dozen or more men fail to effect a cure, their failure should be no criterion. I have succeeded in a large number of cases and dare say that not many of my friends would have subjected themselves to the same amount of labor and expense I did, to accomplish the object. The observations and treatises of Dr. Schoenfeld, Emil Hilbert and others, as published in the German bee journals, were my basis; and, with my present experience, I dare say that there is no better remedy known and none as simple as or more effective than my *modus operandi* given on page 20 of my pamphlet, "Practical Hints," and published in every one of our bee journals.

However, I should not apply the same remedy in every instance. While it is to be recommended *before* the honey season commences, at the close of and after the same, I should use the new remedy I shall describe below *during* the season. A spraying with the atomizer may be the most practical in another instance, when the disease first makes its appearance and only a few cells are affected. I do not mean to say "when the disease is first discovered." Brimstone in many cases is the best and cheapest remedy. But brimstoning as well as every other treatment requires promptness and dispatch unless one does not care if he sacrifice also the balance of his bees or those of his neighbors. Just as certain as you postpone the finishing of the job to the next day, just as certain do you stand the chance of having the disease spread by visiting bees.

Last summer (1883) I made a discovery which may prove to be of the greatest value to our afflicted brethren. During the honey season, I found foul brood in a strong colony with a valuable queen. Brimstone was the first idea that presented itself. But upon second thought I proceeded as follows: the combs of the second story were extracted and rendered into wax, frames burned up and the bees confined to the lower story or brood chamber. When I examined them again about two and one-half weeks afterwards, every comb was full of capped honey and every mark of foul brood covered up. All the brood remaining was perhaps 45–50 square inches in two combs which looked healthy. I then gave the bees a clean hive and ten new combs. They are now a prosperous colony. The old combs were extracted at once and shared the same fate as their predecessors of the

upper story, while the hive was disinfected by the atomizer. It appears that the bees had labor and time enough to cleanse their bodies from the spores of the disease and honey enough to bury them all. Objections may be raised that a swarm might issue. So it may. But the danger is less with Italian bees than with blacks. A removal of their combs and hive seems to have completed the cure.

At the beginning of this last honey season (June '84), I discovered again two colonies affected with foul brood. Honey came in pretty lively. These two colonies were subjected to the same treatment as the colony of the previous season and the same result was obtained. The success in each one of those three cases was complete as I examined them carefully before I commenced this article. No salicylic acid had been used excepting that the bottoms of the new hives were sprayed with the atomizer. My experience with those three hives may not warrant a success in every instance. Why should it, when neither two cases nor two beekeepers, in their manipulations, are alike? But it may prove a valuable hint to a number of our friends.

When many colonies in a large apiary are diseased, it would be a serious loss and labor to brimstone all while the remedy mentioned above would be in no comparison to either. Again, it would be folly to resort to it in any case when the colony is weak in numbers.

Old hives with cracks and crevices should be burnt up, while good hives may be disinfected; to do which, I proceed as follows: by the means of a paint brush or a good atomizer I dampen, with the disinfectant, the inside, top, front and most of the outside of the brood chamber, scrape it clean and dampen again. Not a crevice must be missed. If two stories were used, I disinfect the whole. My disinfectant is the same as given on page 24, "Practical Hints," viz.: 16 gr. salicylic acid, 16 gr. soda borax and one ounce of water. For application to brood combs with larvæ this mixture is too strong; 100 per cent of water should be added.

To those who have not yet applied brimstone but wish to do so, the following may be of use: confine your bees to the lower story. After dark, when all are in, close up the entrance, take the cover from the brood chamber, place a brick bat (or its equivalent) on the frames on which to set some tin plates with the sulphur, light it, put second story on and cover up. Sulphur fume, being heavier than air, settles slowly but surely and in a few minutes every bee is gone.

The greatest point to keep in view, with any treatment we may adopt, is to put out of existence at once all and everything which has belonged to the diseased colony or colonies. Implements used as well as your hands should be disinfected before you proceed to handle a healthy colony.

Cincinnati, Sept. 23, 1884.

BEE-CULTURE IN THE SOUTH.

By G. W. Demaree.

HONEY PRODUCED BY QUEENLESS BEES.

The question has often been asked, "Will queenless bees work?" I have always answered that they always work for me, but the removal of the queen from a colony during the swarming season nearly always results in several after swarms, which is sure to make honey-gathering out of the question.

Well, now, after quite extensive experiments, I venture to suggest that in the near future, in large apiaries where increase is undesirable, the present system of obtaining surplus honey will be entirely revolutionized, and a new system called Demaree's system, bah!—will take its place, and every apiarist will be master of his own business, and master of his bees.

In the first place, I found by practical test that queenless bees, when properly managed, would gather honey, in the surplus honey season, with all the energy, and with a much larger proportion of the inmates of the hive, than is usually the case with colonies provided with a queen. This led me to experimenting further, and I progressed as follows. First, I moved the parent hive from its stand, and set a new hive in its place. This I filled with empty combs, one or two of which contained honey, and in one of which was grafted a piece of comb containing larvæ just hatched from the eggs. Now, the queen was looked up, and the comb on which she was found was set in a comb box, to make sure of her whereabouts, after which the bees were shaken from the combs in front of the new hive, and made to enter it by way of a slanting board. The queen was then restored to her place, and the hive set at right angles with the new one which contained the queenless "swarm." Formerly I carried the old hive to a new position in the apiary somewhat remote from the old one, but of late I have adopted the method as here described. Enough bees are made to enter the new hive to constitute a good swarm, while all the brood, the queen, and enough bees are left in the old hive to build up rapidly into a strong colony. The queenless bees will start queen cells and fill up the combs rapidly with honey, which is extracted as fast as they are filled, taking care not to take the whole of the honey from them at once, and thus fill them with consternation.

In about six or seven days after the operation is commenced, the old hive is gradually turned so as to face the same way as the new one does on the old stand, and on the tenth or eleventh day the queen cells are removed and substituted with a piece of comb containing larvæ. Now sufficient bees are shaken from the combs of the old hive to make a good second swarm and are made to unite with the

queenless bees, which accession puts them in good working shape again. Of course the old hive is turned back to its first position, at right angles with the new hive on the old stand.

By these manipulations, I obtain my crop of honey from queenless bees, while the colony proper is employed to furnish the working force. At the end of the swarming season the queenless bees are united with the original colony, a thing easily done, as both hives practically occupy the same stand. But it is considerable work, is it not? Yes, but it is considerable less work than climbing trees after swarms that you *don't want*, and cutting out queen cells, etc., to prevent after-swarms.

It is claimed by some that it is best to suffer one swarm to issue from each hive. This will do in cold climates where there are heavy losses in wintering, as the winter losses will act as a balance wheel to increase; but in the south, where bees refuse to succumb to the ravages of "old dys.," and buck up against everything but starvation and queenlessness, where is the thing to end if you are bound to double your apiary every year? No, we must adopt some new system which puts the matter of increase under our control, and my system of producing honey with queenless bees will do it.

But how about comb honey? I have not experimented sufficiently in this line to answer confidently, but from what I have seen, I believe that I am going to produce comb honey with queenless bees.

They might be worked directly in the cases tiered up on a bottom board, but in that way, they would spoil too many sections with pollen. Hence I shall work a set of my shallow frames under the cases. As my shallow frames, for extracting, are worked in cases the same size of my section cases, they will work all right together.

If the shallow frames will catch the pollen, the whole force of the workers can be brought to bear in the section cases, and their labor will be turned to comb honey, except about twenty-five pounds of extracted honey taken from the case of shallow frames at the close of the season. I propose hereafter to substitute the cases of shallow frames for the full sized hives in obtaining extracted honey. In this case no extra furniture will be necessary except a "bottom board and a cover." This bottom board is made just as wide as the standard cases are, and about two inches longer. The two extra inches are to furnish an "alighting board." Around the rim of the board, except in front, is a strip of wood $\frac{3}{8} \times \frac{7}{8}$ nailed fast to the board. The cases set on this elevated rim, and thus the "bee space" is formed below the bottoms of the cases. The "tiering-up" system is practised as under the old system. When all danger of swarming is over, all that is necessary to unite the queenless workers with the brood-rearing colony is to restore the hive containing the lat-

ter to its original position, and set the cases containing the queenless workers in position on it, and you have a strong colony to finish up the season's work.

A general view of the system is given by what follows. At the beginning of the honey season the cases are placed in position on the hives, as in the prosecution of the old system, and when signs of swarming are plainly to be seen, the cases full of bees are lifted and set on the *recess* bottom board, and then the queenless system commences, and is continued only just as long as there is danger of swarming, after which, the new system swings back to the old, by uniting the bees as described above.

Christiansburg, Ky.

ADULTERATION.

By A. C. Miller.

Of all evils that the producer of extracted honey has to oppose, that of adulteration is the worst.

The producer of comb honey has to fight against it also, but not to such an extent, as most people take it for granted that the honey being in the comb is sufficient guarantee of its purity. Many are the ways of adulteration, and if we would have our business live we must fight it; but how, and by whom the war against it should be prosecuted, are questions that no one beekeeper can decide. I might suggest several methods, but I will simply state how I overcame it in one instance.

In introducing my extracted honey, some grocers would refuse point blank to take the "stuff," as they termed it; others would ask a few questions, and then, "guess they would not handle it." I endeavored in many ways to convince them of its purity, and also assured them that it was "just as pure as when the bees put it into the combs."

Here is just where the trouble lies; unprincipled beekeepers have told them the same thing and told them the truth too; but from what was it that their bees gathered their honey? It was from a variety of flowers known as bee feeders, and the nectar was composed of sugar and water, that, together with what natural nectar was coming in made a very fair sample of "honey."

Most grocers know this, and almost invariably ask me if I feed my bees; of course I have to acknowledge that I do. Then they want to know how I can prove that none of the food is in the honey. I could not prove it, and that came very near playing the mischief with my honey trade.

I fed after the usual methods in vogue, and although I knew how much syrup I fed, I did not know how much of it was consumed, or how much was stored in the combs; and until I could ascertain this I could not be certain that my honey was pure. This for a time puzzled me, for unless I fed exactly what would be used, and not a drop

more, there would be a liability that my honey contained syrup.

I have solved the question, and now I can prove the purity of my honey to the most scrupulous grocer. In the fall and spring, I feed a syrup made of granulated sugar, but at the first appearance of honey I immediately stop all syrup, and give in its place *pure honey* and *pure water* mixed half and half.

I can feed as much of this as I wish, as I do not care if it is stored in the combs, for it is pure and the bees cure it the same as new honey. By adhering to this method I have established a reputation and a market for pure honey.

Barrington, R. I., Aug. 25, 1884.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(*Continued from p.* 202, *Vol. II.*)

On the origin of bees and their procreation.

Concerning the origin of the bee she proceeds from an egg which the queen lays in a cell. We find in the queen an ovary, which consists of quite a cluster of vessels or ducts which together run into a common canal, and in the laying time are filled with eggs. These vessels are near the posterior part of the body, and the eggs therein are larger the nearer they lie to it. These clusters form two ovaries, each of which ends in a great tube and these two tubes enter into a common canal which is the womb. In this is a small globular sack[1] which furnishes a gummy moisture and so hangs that all eggs which are laid must pass through there, and become covered with that glutinous substance which causes them to adhere to the bottom of the cell.

The time for the laying of eggs, in good and populous colonies begins in January, and when the winters are not cold at Christmas even; in others in February and in weak colonies in March and continues into September and October.

The brood in winter is put in the middle of the hive on account of the necessary warmth and is more for the increase of the colony, but in spring for swarming. For this reason, in the two months of May and June more bees are reared than in the whole year besides.

Now, the queen in laying her eggs, in the first place glides into the cell and examines it to see whether all is clean and orderly; then goes out again, slips the abdomen directly in the cell and deposits the egg right in its centre, so that one end of the little egg points toward one of the six corners of the cell. As has been mentioned in a previous section, while the queen is engaged in laying her eggs, the bees stand about her with their heads turned towards her, caress her with their proboscides and legs and have a right joyful time about her, which lasts for

[1] This sack has proven to be the seminal reservoir.— Ed.

a little time, that is until she comes forth from the cell again.

She lays the eggs regularly in those cells which she selects; and does she also know, before she lays the egg, what kind of an egg it will be, whether worker or drone? which is an extraordinary thing in nature because, for example, a hen may not know whether, out of the egg she lays will come a cock or hen. I have seen the queen already a thousand times lay eggs in the cells and still never could observe that the worker-bees removed the eggs and placed them in other cells. Indeed, I have seen that the bee-mother laid two or three eggs in one cell and also that for want of empty cells she has let fall several eggs outside on the combs, and which her attendants catch up with the mouth and seem to eat, but probably bring them to a suitable place and preserve them; and I have never yet seen that they had carried a worker egg from a worker cell into a drone cell or a little egg out of a drone into a worker cell.

If the queen does not find a sufficient number of prepared cells for all eggs which are ready to be laid, and of which she some days lays two hundred[2], she will place two or three eggs in a single cell. But because only one bee can be hatched in a cell the worker bees provide for the remaining eggs and bring them to other cells. Still one has not observed that at any time there have been more eggs in a royal cell.

[2] We now know that she lays over 2000.—Ed.

The egg is exceedingly white, and a few larger than the little egg of the muck-fly, of a thin, smooth form and filled with membranes containing a whitish fluid. The eggs from which the drones are produced are somewhat larger than those from which the worker bees proceed, and somewhat yellower in color than the former which are of a clear white, but which difference is not very marked.

The egg remains in the above-named position four days when it receives its first life, and then a small, white maggot or worm without feet appears, which seems to be composed of many rings and which curls itself up in the bottom of the cell in the shape of a half-moon, becomes round and remains hanging fast in the fluid. In this position it not only increases until one end touches the other in the form of a ring, but also until it attains such a size that it fills the bottom of the cell. During this time the worm or larva of the coming bee is kept within the cluster of old bees for warmth, and often during the day is furnished with proper food which is a bright, liquid food-jelly, consisting of pollen and honey, with which they probably mix water, the salt portions, and a juice which is similar to the sap which flows from the oak-tree. It has an acid-sweet taste, and is at first, in short, before the covering of the worm, yellow. For they accommodate the jelly-food according to the age of the worm. In the beginning it is like a white pap, almost without taste like a thick

milk. Indeed, the older the worm is, so the more nutritious is the food; then it tastes more like honey or sugar and becomes such. Quite near to the transformation, if, for instance, the worm is so large that it fills the base of the cell, it has yet more of a sugar taste, is sour-sweet and inclines to a deeper yellow. The worm is now seven or eight days old; afterwards, depending upon the weather, or temperature, it develops, comes to full growth, and becomes ripe for transformation. So it prepares for the second period of its life; it changes its position, works itself about with all its might, turns itself with one end towards the mouth of the cell, but always so with that part forward against the mouth of the cell, which shall become the head.

The worm now requires no more feeding, but the nurse-mothers, or neuter bees, cap the cells with wax arched and strong, thereby providing the necessary degree of warmth, and also take care that no disturbing changes of the outside air shall cause any injurious sensation upon the brood.

The only thing that the worm does directly after the closing of the cell is that it prepares itself a silken shroud, because it now leaves its first life in the larva state and, as it were, goes to the grave, and comes forth with a new life, and nobler body with excellently arranged members, to fulfil its destiny. It tapestries its cell, for instance, with a very soft, brownish-red silken membrane, because during the transformation, it must not lie directly against the walls of the wax cell.

The material from which it weaves its cocoon is centred in the mouth of the worm between the lips, wherewith it winds about itself the finest thread, and besmears it with a glutinous juice, so that the web or cocoon appears to be a membranous lining for the cell and adheres so closely to it that when the perfect insect comes forth, it leaves this covering behind.

Rodheim, Germany, July, 1783.

EDITORIAL.

Mr. Heddon, in his article on patents, touches upon a matter of vital importance to every bee-keeper and adds still more evidence to the fact that the time has come when American beekeepers should rise in their dignity and manhood and demand that our association *shall* be thoroughly and systematically organized and conducted in the interests of the majority and that, at least, one journal shall be well supported which shall be the mouthpiece of the beekeepers and work for and in their interests. Other countries have recognized this need and have taken steps to meet its requirements. At the last convention of the Ontario bee-keepers' association, our Canadian cousins selected the medium which should represent the interests of that association and further they are taking advance steps in this

matter of thorough organization in which they promise soon to take the lead unless we bestir ourselves at once. Why is this? Most assuredly not because of the lack of talent, experience or success on the part of our beekeepers on this side of the line. No! it is simply because our Canadian cousins stand shoulder to shoulder and work for the interest of their associations.

Oh! for more men like Quinby and Langstroth together with others, who are now active in teaching apiculture, men whose great object in life is to help their brother man instead of using him as a lever to lift themselves into power or position. It is so strange that the majority will pay the greater homage to those who never had a care for their interests, but it is so everywhere. The people seem to like to be humbugged and swindled and will often risk their money in lotteries or humbugs, thinking to obtain wealth without working for it. How may unprincipled agents in the past and to-day, have, in order to sell their hives and goods, deluded the poor, hard-toiling farmer with the idea that fortunes were to be made by using that certain style of hive, etc. This is no fable; but the time has passed when these things can predominate, and to-day the light of coming reform is breaking through the darkness and spreading its life-giving rays over the thousands of our beekeepers both great and small.

For two years we have endeavored to keep before our readers these and other important truths having in view the best good of the largest number. We have received letters from all parts of the globe endorsing our position and encouraging us in our work; but it pains us to see some of our leading apiarists who should be foremost in this reform "hanging back" sitting on the fence; waiting until they can take hold without any sacrifice. Brother beekeepers! All reform depends upon your active coöperation and we do not speak unadvisedly or without careful study when we assert that everything that you do toward making the APICULTURIST what we desire that it should be will be returned to you increased an hundred-fold. Nearly all of the supply trade is controlled by one western firm so far as prices, etc., are concerned, and there is springing up in the east another one which promises to assume considerable magnitude. It is a fact that the prices of supplies, queens, etc., have been ruined by monopoly control until it is almost sure defeat for a man with small means to commence in the business. Why? Simply because the monopoly dealer has the most of his work done by boys and girls or *cheap* help, while the smaller dealer must employ mechanics and pay higher wages. The beekeepers themselves are to blame if they submit to such injustice. Just ask yourselves the question who are they who have done the most to further the interests of our beekeepers' associations and who have disfavored them and why? Remember that associations and independent journals are the

only means of defence that the beekeepers have.

We are about to organize our fall campaign and hope that every reader of the APICULTURIST, realizing the load that we have to carry, the difficulties under which we labor and overlooking the mistakes that we have made, will recognize that our purpose is good and become missionaries in the good work. As before stated every subscriber sent to us and every dollar put into this work will return an hundred-fold and will benefit some poor beekeeper.

Look at our efforts as you will, you will never know how much anxiety and trouble it has cost to establish such a journal; and could you but feel how much good you could do us and your brother beekeepers, by rendering a little aid in this work, there would be such a rally that we could carry out many plans which now have to rest for lack of funds. How many beekeepers will renew their subscriptions promptly this fall and send us one or more new subscribers? Our offers are so liberal that you cannot help but be well paid for so doing.

Let us hear from you *at once* and if you want sample copies to use, we will gladly furnish them.

Let us unite and work together, then we can accomplish much good and do away with much that is evil.

CORRESPONDENCE.

DEAR SIR:

In August No. of Apiculturist, on page 171, Mr. G. W. House writes as follows:

"I have just received information that foul brood is raging in the western part of this state, and that the beekeepers of Wyoming and Livingston counties are about to hold a meeting to take some action in the matter."

This is certainly very discouraging news to us poor beekeepers here if it were true; but being one of the parties referred to myself and being thoroughly acquainted with most of the more extensive beekeepers of the above named counties, I deny the charge *point blank* so far as my knowledge goes, and I do not believe that Wyoming or Livingston county has a beekeeper who would try to conceal the fact if he had a case of foul brood in his apiary.

Our own apiary of 130 colonies is at present in the following condition: very strong in brood and bees with about one-half enough honey to winter but some buckwheat and golden-rod to come. Our bees were never in a more healthy condition than now. I do not believe that there could be found 100 cells of dead brood in the entire yard and I will give $100 to any beekeeper who will find a case of foul brood in our apiary. I have no reason to think that our bees are any more healthy than those of other beekeepers but of course can only speak for ourselves in this matter.

I wrote Mr. House about the matter as soon as it came to my notice, but thus far have heard nothing from him on the subject. Now Mr. House should remember that western New York beekeepers depend to a greater or less extent on their honey product and the

sources of income connected therewith for a livelihood.

I most heartily agree with Mr. House in his plan of coöperation, but am sorry that he has been so hasty with his foul-brood scare, as he could have had the facts of the case in three days by writing to any of the leading beekeepers in this section. G. W. STANLEY.

After receiving the above from Mr. Stanley we wrote to Mr. House and in answer received the following reply. It is always best to consider carefully any statement that you intend to make public as it may do considerable injury if wrong. — ED.]

Manlius, N. Y., Sept. 5, 1884.

FRIEND LOCKE:

Yours came to hand in due time and found me confined to the house with neuralgia and could not write an article for this month as I should like to have done. In regard to the foul-brood matter would say the matter as I gave it in my article is the same as was published in the Syracuse Evening Herald. A few days later, I received a letter from a party in Livingston county telling me he had foul brood and that it was raging in that locality. Since writing that article I have investigated further and find it is not *genuine* foul brood but something resembling it and not at all dangerous, hence beekeepers need not feel alarmed about it. Where the article originated from that was published in the "Herald" I do not know. Perhaps I can find the paper; if I do I will mail it to you.

GEO. W. HOUSE.

EXCHANGES.

PATENTS, BY JAMES HEDDON. — Having been somewhat associated with a patent lawyer and solicitor for a term of years, my attention has been called in that direction. As might be expected, I have read your printed report and decision regarding your suit with Mr. Forncrook with much interest, as published in last issue. We all regret very much that so much time and money should be spent over this controversy and suit. It is the result of some one being in the wrong. It seems Mr. Matthews has decided that Mr. Forncrook is that person.

To the end that such controversies and expenses may be as few and far between as possible in the future, I will add my small mite in that direction, with your allowance of space, as it is a matter which vitally interests us all, and does not seem to be clearly understood by all beekeepers.

Let us analyze the subject. Many think a patent-right a monopoly. Well, be it such: it has one saving feature, in the fact that it is given to the monopolist as a reward for intellectual labor — a labor which, while it gives the laborer a monopoly, is also a great blessing to the community at large. Personally I cannot say that I see any great advantage or justice in the patent-system. Notwithstanding, however, the majority of nearly all countries think the system a good one; and as a true American citizen it is my duty to fall in line, abiding by the will of that majority so far as my acts are concerned in the matter. I hold, further, that it is consistent for me to obtain a patent and enjoy its fruits, even while I do not believe in the system. Patriotism to what I consider just should lead me to talk and vote against the system I consider wrong. But while said system is in vogue, and I am daily paying tribute to it, for me to refrain from taking advantage of it would amount to martyrdom, which should

not be expected from any individual.

I am in favor of discussing the wisdom of the patent-system. I am further in favor of all legal and honorable efforts to do away with the system and office; but while it is in power by the will of the majority, I am *not* in favor of any careless statements that may be construed into admonitions of recklessness and lawlessness, in cheerfully abiding by its edicts.

Let us give the system credit for the good within it. It has much to do with blessing mankind by way of calling forth important and valuable discoveries. It has given support to men who were intellectual giants, and physically almost incompetent. It has been a source of revenue to the government. It has opposed another class of monopoly. It is a law in nature for which no man is responsible, that the more goods a man manufactures, the cheaper he can make them; a law which brings about capitalists and monopolists, allowing the rich man to get richer, clearing him from the competition of his poorer fellowman. Now, if the poor man has a patent on the article of manufacture, that exclusive right to make it protects him until he can get ahead so as to compete with his more wealthy brother, thus preventing that unjust natural condition of industry, that the big fish shall eat the little ones.

I think, among no other class is the idea that a patent is a wrongful monopoly, a radical injury to all except the patentee, and said patentee a criminal, so prevalent as among beekeepers. I have carefully watched the general result and the effect of the existence of a patent upon numerous articles of manufacture, several in our own line, and in very many instances have I seen this exclusive right of manufacturing prove a great blessing to the consuming public. I will mention one well known to our brother beekeepers. All have heard of Rev. L. L. Langstroth, also of his valuable inventions, and a vast majority of you have tasted the fruits thereof. Nearly all who have held correspondence with him, or made his personal acquaintance (of which I am one who has had those honors), have been strongly impressed, not only with his determined path in the line of exact justice, but his keen perception as to what constitutes justice.

Mr. Langstroth obtained a patent, and a valuable one it was. After fourteen years' experience with it he applied for seven years' extension, which was granted by the commissioner. The money received for rights was the means, and I think the only means, at his command for educating the people to the superiority of his system of honey-producing. I paid $10.00 for my individual right, only two years previous to the expiration of the patent; that $10.00 brought the agent to my place. It not only was the incentive to his coming, but alone made it possible for him to come. His coming blessed me hundreds of dollars.

The principle of a patent is applied to books under the head of copyright. Mr. Langstroth's valuable work on beekeeping is copyrighted. Prof. Cook's valuable Manual is also copyrighted: and you, Bro. Root, told us plainly that the names of your subscribers were a secret; that you could not afford to sell them to us at the cost of arranging and printing them, with a margin added. You were quite right. They are an aggregation of your labor, extending through years, and you cannot give them away and do justice to yourself and those dependent upon you. We do not ask you to. We do not wish you to. We are aware that you

recognize the propriety and justice in a reward for merit and intellectual labor, in so much as you have sent out many dollars to different ones who have invented valuable devices. The only difference I can see between these acts of yours and the patent system is, that in your case you are at both ends of the bargain, while with that of the patentee it takes two to make the bargain. The office assigns to him the privilege to fix the amount of reward for his intellectual labors. If all mankind had a clear perception of justice, and were honest enough to do that justice to all, no laws would be needed; but, alas! such is not the case; and until it is, we must have the expenses, trouble, and hatred growing out of enacting and enforcing said laws. Some persons have an honorary standard of inventors' rights. We have several supply dealers who do not, and will not make and sell the inventions of a brother so long as he is engaged in the manufacture and sale of them, except as they buy of him to sell again. Our sense of justice recognizes a moral quality about such men that leads us to deal with them, while the far-seeing are afraid to send their cash with their orders to parties who sit idly in the shade, and sleep the sleep of the sluggard, until some more industrious brother, by unceasing energy, wrenches from nature a valuable secret, and then hasten to divide the natural profits of that secret. So far as I know of patents upon implements in our line, I do not know of a single case where one cent is added to the price of the article because of the patent. So far as I have witnessed, the infringements are, in price and quality, just what I should expect would come from him who is determined to live upon the merits of others, and openly violate the laws of his country, in the hope of accruing a few illegal dollars. That the inventor of an article (whether he have it patented or not) should make the best job for the price is to be expected. He entertains greater pride in the article and its success. No one understands all its bearings better than he. If he had it patented, knowing that all the reputation it gains must redound to his exclusive interest and honor, he is all the more anxious to advertise it by the best material and workmanship.

I want the readers of *Gleanings* to look at this question fairly. No matter what may or may not seem to be your *interest* in the matter, let your *principle* stand first, and do justice to all in thought, speech, and act. — *Gleanings*.

NOTES AND QUERIES.

It seems quite strange to glance over the pages of the Australian bee journal for August and find the editor talking about winter weather while it is so warm here, and his suggestions regarding the spring care of the bees are quite valuable. Indeed, we are pleased to note the steady improvement of this journal as it gives evidence of an increasing interest in apiculture.

— We would urge upon the beekeepers who attend the convention this fall, the necessity of careful action upon all matters pertaining to the welfare of apiculture. It is upon you that the masses of beekeepers who cannot attend depend for justice, and apiculture will be just what you make it. Social gatherings of beekeepers are all well in their place, but conventions are called for the purpose of transacting business and no matters of importance should be neglected or slighted.

— We have just received from Mr. Chas. Lake of Baltimore, Md., a description of his beekeepers' exhibit to be shown at Timonium Sept. 30 to Oct. 1; Elkton, Oct. 6 to 11; and Richmond, Va., Oct. 23 to 26. The description and diagram give evidence of great ability and thorough, systematic management on the part of Mr. Lake. We expect an article on the exhibit and will only say here that for a beekeepers' variety exhibit, we never saw a better plan. What we need are associations so thoroughly organized that they can assist the beekeepers in making such exhibits Come, brother beekeepers! shake off your lethargy and take active interest in advancing the cause of apiculture. There is much work to be done and we need laborers.

— The September number of the Deutsche illustrierte Bienenzeitung contains a fine likeness of its editor; the well-known German beemaster, C. H. Gravenhorst.

— One of our exchanges contains the following "Onion juice instantly allays the pain caused by the stinging of hornets, yellow jackets, wasps, bees, etc., etc.

— Do not fail to read our club offers and respond *at once;* we expect to add two thousand subscribers to our list within the next few months and can do so if each one will do his part of the work.

—Mr. S. E. Boylston of Charleston, S. C., in the last number of "Gleanings," calls the attention of his brother beekeepers to the fact that it is the duty of each one who is reaping the benefit of the movable frame hive to contribute his mite toward placing the Rev. L. L. Langstroth in his declining years beyond the necessity of anxiety as to how he shall provide for the wants of his home. And we would most cheerfully and heartily endorse friend B's proposition which was this: each person using the movable frame hive send to Mr. Langstroth each year either 20 cents per hive; or, if less, whatever his circumstances will warrant. It is a pleasant thought to us that beekeepers are beginning to recognize the fact that those should be honored "to whom honor is due."

On a recent trip to Boston we were pleasantly entertained by Messrs. Blake and Ripley, who stated among other things that, in their opinion, the beekeepers should hold their honey in the markets at a uniform price so far as possible each season, regardless of the extent of the honey crop, as honey must become one of the necessities like sugar and syrup and not as it is to-day a luxury. Messrs. Blake and Ripley have made the honey market a careful study for a number of years and their suggestion should be carefully studied.

We have just received the Constitution and By-laws of the Hamilton Co. (Texas) Beekeepers' Assoc., and wish to quote one of the articles which is worthy of notice as differing from the general constitutions.

"Article 6, Sect. 1. Upon any member of this association being charged with unfair dealings in connection with the beekeepers' interests, or with any other conduct derogatory to the standing of the association, the executive committee shall examine into the case and if it shall find the charge sustained, it shall present the facts to the members of the association at their next meeting, and if there are more than two black balls cast against the offender he shall be expelled."

This is a move in the right direction and if we keep on we shall yet have a system of associations that will be of great benefit to the beekeepers.

— The premium list for apiarian exhibits at exhibition lately held in St. Joseph, Mo., were varied and interesting and much credit is due those who prepared the list. $206 were given in money and nine diplomas. Among other things, premiums were offered for collections of honey-producing plants, which is a step in the right direction.

— Be sure, if possible, to attend the convention at Rochester, N. Y., as matters of vital importance to the beekeepers will be discussed, and come prepared to do all in your power to advance the best interests of apiculture. Our conventions are the life of apiculture and the interests of the beekeepers are protected and advanced just in proportion as we take active interests in association work.

— The "Health and Home," a monthly journal devoted to domestic medicine, literature, science and art, published by W. H. Hale, M. D., Washington, D. C., is one of our most valuable and welcome exchanges and its contents are invaluable. We notice this journal on account of its worth and not on account of any request of its editor or for any remuneration for so doing. Address "Health and Home," Washington, D. C., for sample copy.

— It is worthy of notice that the Ontario Beekeepers' Association recognize the importance of having one journal upon which they can depend for accurate reports and deem it necessary to make such journal their "official organ." The time is coming when every well-organized association will do likewise for its own protection.

— An exchange contains the following note from Mr. Robert Eldridge of Cincinnati, Ohio. In Little Russia and Lithuania the great linden forests render beekeeping very profitable. The finest honey that I ever saw is produced in Kovno. Kaluga produces annually about 1,760 poods of honey and 3,500 poods of wax. A pood contains about thirty-six pounds. The annual production in the Don Cossack country amounts to $50,000, in round numbers. In Volhynia and Bessarabia the combined yield of honey reaches a value of nearly $200,000 a year. The annual yield of the whole empire is not far from $4,000,000, or about 18,000 tons. To this must be added nearly 5,000 tons of wax worth $2,000,000. This is about all consumed in Russia, the exports being very small.

CONVENTION NOTES.

The sixth annual exhibition of the St. Joseph Exposition closed to-day. The weather was fine, the attendance large, and the displays in all departments good.

The amount of honey displayed in the apiarian department was not so large as last year, but the premium list was much larger and more comprehensive, and there was a greater variety of articles on exhibition.

Increased space was given to the department, and, at the suggestion of the superintendent, the Board had a space enclosed with wire cloth, for the special display of the internal workings of a colony of bees.

The Superintendent of the department, E. T. Abbott of St. Joseph, got out a very neat eight-page paper, cut and pasted, in the interest of bee culture, and distributed two thousand copies of them during the week. It attracted considerable attention and will, no doubt, aid the cause of advanced bee culture in the future.

There were three very fine displays of apicultural literature which represented about all of the books and periodicals published in this country, besides a number of foreign publications.

A number of parties supplied themselves with books during the fair, and a great many sample copies of different magazines were given out. It is to be

hoped that the benefits of this may be seen in future displays.

Mr. E. Armstrong, of Jerseyville, Ill., had a very fine display of hives, honey, bees, etc. The neat and tasteful way in which his honey was put up and arranged attracted much attention, and had a great deal to do in securing him a number of the first premiums which he received. We hope that others may profit by his example another year. One of the things that attracted special attention was an Excelsior Extractor on exhibition by Mr. Newman, of Chicago. That gentleman not being present, it devolved upon the Superintendent to explain that it was not a "churn," an "ice cream freezer" or a "washing machine," all of which the ladies persisted in calling it, notwithstanding the fact that the name was plainly written upon it.

Mr. Alley's Drone Excluder which, by the way, reached here too late for entry, was carefully examined by many bee men, and received much favorable commendation.

Mr. Armstrong of Ill., and Mr. Parker of Mo., were kept busy manipulating their respective hives, and were surrounded by attentive circles most of the time.

But the event that attracted the most attention was the transferring by the superintendent and Mr. Armstrong, in the manipulating room, of a colony of bees from an old box hive to one of modern make with movable frames.

The transfer was quickly made, and excited the wonder and astonishment of many present, who had never seen anything of the kind done before.

It may be worthy of mention that among the exhibitors was a young lady who had a very fine display of comb and extracted honey, and whose work indicated she was up to the times in bee culture.

In conclusion we would remark that the officers of the Exposition deserve much praise for the encouragement and space which they gave this department. It is to be hoped that the action and interest of apiarians will be such in the future as not to cause them to regret it.

PREMIUM LIST.

CLASS F.

E. T. ABBOTT . . . Superintendent.

BEES.

1	Best colony Italian bees	$10 00
	2d premium	5 00
2	Best colony Carniolan bees	10 00
	2d premium	5 00
3	Best colony Syrian bees	10 00
	2d premium	5 00
4	Best colony native bees	5 00
	2d premium	3 00
5	Best display Imp'd Queens	10 00
	2d premium	5 00
6	Best display Queens reared by exhibitor, with progeny	10 00
	2d premium	5 00
7	Best display of the habits and economy of a colony of bees	10 00
	2d premium	5 00
8	Best display honey in comb, not less than 75 lbs.	10 00
	2d premium	5 00
9	Best display of extracted honey, not less than 50 lbs.	10 00
	2d premium	5 00
10	Best display honey in various and fancy forms	10 00
	2d premium	5 00
11	Best display of beeswax	2 00
	2d premium	1 00
12	Best display honey producing plants, including stalks, flowers and seeds, all labelled with name	5 00
	2d premium	3 00
13	Finest bouquet honey plants	2 00
	2d premium	1 00
14	Best comb foundation machine, to be operated on the ground	10 00
	2d premium	5 00
15	Best honey extractor	3 00
	2d premium	2 00
16	Best wax extractor	2 00
	2d premium	1 00
17	Best bee smoker	Diploma
18	Best section box for comb honey	Diploma
19	Best comb foundation	Diploma
20	Best bee vail	Diploma
21	Best honey knife	Diploma
22	Best keg for extracted honey	Diploma
23	Best bee feeder	Diploma
24	Best queen cage	Diploma
25	Best drone trap	Diploma
26	Best display apicultural literature	5 00
	2d premium	3 00
27	Best hive for manipulation, procuring comb and extracted honey and winter protection	10 00
	2d premium	5 00

APIARIAN.

St. Joseph, Mo., Sept. 6, 1884.

National Beekeepers' Association.—As has already been noticed the next annual meeting of the N. A. Beekeep-

ers' Association will be held in the city of Rochester, N. Y. Oct. 28–29–30. Essays will be read as follows:

On *Wintering Bees*, by W. F. Clarke, of Canada.

"*Nectar*, by Prof. A. J. Cook of Michigan.

"*Marketing Honey*," by Thos. G. Newman of Illinois.

"*Foul Brood*," by D. A. Jones of Canada.

The Committee has decided to use the balance of the time in discussing these and other questions of importance.

Those who cannot be present, and have questions they desire to have discussed or answered will please send the same to the Sec'y, Dr. C. C. Miller, Marengo, Ill., or to Rochester in care of the convention on or before the first day of the meeting.

Those who do not receive further notice will obtain information as to the place of meeting by calling at the Powers House on arriving at Rochester.

L. C. ROOT, *Vice Pres.*

C. C. MILLER, *Sec.*

REPORT OF THE ONTARIO BEEKEEPERS' ASSOCIATION.

THE annual meeting of the Ontario Beekeepers' Association was held in the City Hall, Toronto, at 7.30 p. m. on Tuesday, Sept. 16, the president in the chair. The attendance was larger than usual; the usual business was gone through with few noteworthy incidents. A valuable article under correspondence was read by the secretary, written by Mr. Allen Pringle, in which he brought out the importance of beekeeping in directly increasing the revenue of the country. He well remarked that while grain, dairying, fruit and stock took from the soil, the gathering of honey by bees in no way diminished the value of the soil. He also spoke of the advisability of electing vice presidents for every county. The idea is a good one, and carried out properly it should do much for the association, as a good active man in every county can add many members to the association.

It was decided that the Canadian Farmer should again be the organ of the Ont. Beekeepers' Association.

Next came the report of the standing committee.

Mr. Jones stated that he had met some of the members of the government, and they expressed their desire to do every thing proper for the association, and he thought if a proper measure were drawn up, there would be no difficulty in passing an act. It was decided to postpone any further discussion for the present. The first question put by the president was how to get the honey out of surplus combs in the fall. Mr. Emyh of Holbrook uses a top story when he wishes to empty the combs; he puts them in these tops laying a cloth between them and the bottom, folded back sufficiently to allow bees to come up. Mr. Ellis of St. Davids extracts them; at night he sets combs in front of the hive, and the bees drain any remaining honey from them before morning; the extracted honey is fed back. Mr. D. A. Jones advocates putting the combs back of the division board but spread apart sufficiently as not to encourage the bees to cluster on them. The meeting adjourned until the following evening with an invitation to all beekeepers to meet for a chat on the exhibition grounds the following morning.

WEDNESDAY, 7.30 P. M., SEPT. 17.

The president in the chair. Moved, seconded and carried that to Mr. Pringle the association tender their sincere thanks for his very able article regarding bees and the association, and the article be forwarded to the Canadian Farmer for publication.

The secretary then read a letter from the Listowel association of beekeepers, who had sent a delegate, Mr. Brown, to lay before the association the advisability of petitioning the government to take the duty off of wax.

Beekeeping upon scientific principles had become so extensive in Canada that it was impossible to supply wax for the manufacture of comb foundation; many have complained they could not get the article. Mr. Brown had written to the member for North Perth, whose reply was that he would do all in his power to aid the cause, but that the revenue was very considerable. At this stage, Mr. Jones arose to express his opinion that there was a mistake regarding the importation and that probably paraffine and cerasine were classed with wax; the latter is not easily told from wax by an inexperienced person; that in his opinion a committee should be formed to lay the matter before an influential party, who would be willing and able to put the matter in its proper light before the government. The following were appointed a com-

mittee: Mr. Dempsey of Trenton, Dr. Ferguson of Clifton, Mr. Corneil of Lindsay and Mr. Brown of Moleworth.

It was then resolved that the members of local associations be required to interest themselves in the above matter and bring before their members the importance, to the beekeeping industry, of getting the raw material for comb foundation free of duty.

QUESTIONS.

Do bees gathering honey impoverish the land?

This question, no doubt asked to bring before the farmer more strongly the fact that it is a benefit to have bees in the vicinity, was answered unanimously in the negative. Mr. Jones then stated that in India they had been unable to raise clover seed until they had imported large quantities of bumble bees for fertilizing the flowers, and now a large industry had sprung up in clover seed.

Mr. Webster, a farmer, stated that in King, north of Toronto, where he resided two years ago, alsyke clover was a failure there; a neighbor took bees to a field of alsyke clover and this clover yielded a good crop of seed, while not another field was known to do the same.

The president then stated in his vicinity that the farmers had become thoroughly alive to the important part bees take in fertilizing flowers such as clover, fruitbloom, etc.

Mr. D. A. Jones stated that a man had written to him asking him to bring 100 colonies of bees down and he would give him a place to put them, and if necessary board a man taking charge of them free of expense.

Shall we clip the queens' wings?

Mr. Wells of Philipstown, an old and experienced beekeeper and others, spoke in favor, and after a brief discussion the majority of the members appeared to be in favor of such clipping.

How shall we unite bees from a distance?

Mr Jones of Beeton, who has had a very large experience in moving and uniting colonies, stated he found it sufficient to take the combs away from bees in the evening and when morning came pour syrup over them, giving them a thoroughly good shaking in the hive, and put them on their combs.

Mr. Webster found he could not move bees a short distance without confining them for a week. Mr. Holtcrman has united them according to Mr. Jones' method with perfect success.

How shall we take care of our bees in spring?

This subject was heartily discussed. The universal opinion was to keep bees warm and snug, chaff pack if possible, contract, and close entrances cool nights and days. Some were in favor of compelling bees to remain in hives days when there were cool, gusty winds; some advocated feeding in the spring to stimulate brood-rearing, others objected doing this unless done very carefully, as it inclined bees to rush out to the fields in search of more at times when they would be lost. Mr. Schultz of Meskoka advocated a cake of maple sugar over the combs; this would be the best way to feed without unduly exciting the bees.

Would chaff hives be the means of keeping bees in their hives in the spring?

Yes; they keep much more quiet in cool days. The sun beating upon it increases the inside temperature quickly, often causing the bees to fly, never to return; while, if packed in chaff, the inside temperature would become but little affected.

Is comb affected by being produced from different kinds of honey, such as basswood, clover, buckwheat, etc.?

Mr. Wells, who has had a large experience with the different grades of honey as to color, stated he found no difference in the comb produced from the honey; others sustained him.

Does nature cause the survival of the fittest in bees according to the Darwin theory?

Many appeared unwilling to make any statement for or against. Mr. Jones stated he believed such might be the case in certain places where the bees found a difficulty in sustaining themselves for many seasons, such as in some of the eastern countries; he believed in such cases only the best survived. It might not be out of place here to add that the survival of the fittest might have something to do with the victory in the royal battle when many queen cells hatch in a hive.

Which is the best race of bees?

Opinions were very much divided; some favored blacks but several prominent members, among them Messrs. Jones and Wells, stated there were very few pure black or German bees and they had Italian blood in them. Mr. Jones spoke very highly of the Carniolans. He found them gentle;

in fact, they could be handled without smoke. At the same time they were good breeders and honey-producers. Many favored the Italian.

Is Ontario a good field for beekeeping?

Mr. Jones has travelled over a good part of the United States and the European continent, he thinks Ontario ahead of both. He thought the southern states better, but had changed his opinion for the following reason; they have no yield during hot weather, we have no yield during cold. The bees when cold consume less honey and do not try to rob. The honey here is better in quality. The son of a leading American beekeeper and a graduate of the Michigan agricultural college had, during their visit in Canada, stated that their honey crop had largely been destroyed by the bees gathering honey dew.

Which is the best mode of producing comb honey, side or top storing?

Mr. Corneil found top storing.

A motion was then carried to organize a committee to confer as to the desirability of organizing and affiliating the local association with the Ontario. The following were appointed: Messrs. Wells, Spence, Worcester, Dempsey, Holtermann and Jones.

The following officers were elected for the ensuing year:— President, Dr. Thom of Streetsville; 1st Vice President, Mr. Pettitt of Belmont; 2nd Vice President, R. McKnight of Owen Sound; Secretary and Treasurer, Jacob Spence of Toronto. Executive Committee: D. A. Jones of Beeton; E. J. Campbell of Cayuga; F. McPherson of Beeton; Mr. Dempsey of Trenton and S. Webster of Doncaster.

The meeting then adjourned.

(To be continued.)

QUESTIONS AND ANSWERS.

QUESTIONS BY THE EDITOR.

1. Please state what preparations, if any, you make during this month, towards preparing your bees for the coming winter?

2. Have you any Holy Land or any Syrian bees in your apiaries? If so, what has been their record?

3. Do you consider it possible to select any standard by which we may judge the different races of bees, regarding markings, qualities, etc.? If so, please state what course you would suggest which may establish such standards.

4. What is your opinion regarding the suggestions of Messrs. Blake and Ripley, as given under "Notes and Queries"?

5. Have you, in your experience in the apiary this season, solved any problems or learned anything that would aid your brother beekeeper in mastering his business? If so, will you kindly give our readers the benefit of them so far as you feel at liberty to do so, remembering that a well educated class of beekeepers will work more for the interests of the majority than those who are ignorant.

ANSWERS BY PROF. A. J. COOK.

1. We only see that each colony has eight frames (Gallup) with enough honey to winter (30 lbs.). If not that amount we feed in September.

2. We have had Syrian bees for three years. I incline to the opinion that they are the best bees in the world. Though not quite as amiable as Italians, they are not so cross as to vex any good experienced beekeeper.

3. I have only had experience with German, Syrian and Italian races. They are all well marked. It is no trouble to tell when pure, though it often is to keep them so. The Syrians are much like Italians but any impurity even of Italian blood is quickly discernible.

4. In theory splendid, but wholly impracticable. Until we have more conventions, and all attend, we cannot accomplish such ends.

5. I find cold alone does not stop nectar flow; but cold and drought do. We have had very little honey. Within thirty miles, they have had abundant rains. We have had a very severe drought, and have got much honey. It has been very cold in both places.

I have some important suggestions on sources of nectar that are new, which I will give at National Convention.

Our state fair this week has a good honey exhibit. It will do us much good. These exhibits will do very much for apiculture. All states should wheel into line.

ANSWERS BY G. W. DEMAREE.

1. My bees are left undisturbed till after the first killing frost which may not come in this climate till the first of November.

2. No, I have experimented with the Syrians, though I have some acquaintance with them.

3. I think so. Since the "three yellow bands" are common to the Italians, Cyprians and Syrians, they are of no use to distinguish these varieties one from the other. We must look further. The much talked of "shield" as a distinguishing feature is too obscure a mark for practical purposes. The only "mark" by which I can distinguish the Cyprians from the Italians is the color of the underside of the abdomen. The underside of the abdomen of the imported Italian is marked with alternate veins of black and yellow the black or dark color predominating; while the under part of the abdomen of the imported Cyprian is nearly a solid yellow color. If I am correct in this, we have a "standard" by which we may know the Italian from the Cyprian. But how about the mixed races? As to the "actions and qualities" of the several races, that is a matter of experience and close observation. I think that I could judge correctly what race I was handling by their "actions" regardless of any distinguishing marks. But this is simply a matter of practice.

I would suggest that a breeders' club be organized in the United States and proceed to mature a system by which purchasers of queens and bees, and breeders themselves, may be protected from imposition.

4. I am not prepared to give my opinion on this subject as the matter presents itself to me. I am more concerned about developing the home markets throughout the country than I can feel concerning the city trade. Create a demand for honey in the villages, at the farm houses, in the families of the mechanics. Induce the confectioner to offer to the "sweet" loving children pure honey instead of the vile painted cheats sold as candy and the city trade will be all right.

5. I really believe I have. To my satisfaction, I have learned to control increase by producing my surplus honey with queenless bees. I believe that I have set afoot a system that will revolutionize the present methods of management in the apiary. My experiments in this line will be given in detail in the bee papers.

When hiving a swarm of bees remove the cover of the hive, raise the quilt and pour a cup full of bees — dipped from the cluster — on top of the frames and drop the quilt on them. They will run down the frames with a loud roar which will attract the bees on the outside and the latter will literally pour into the hive. This little stratagem has saved me considerable time when hiving slothful swarms.

Christiansburg, Ky.

ANSWERS BY J. E. POND, JR.

1. I first examine into the condition of every colony, and see that they all have stores enough on which to winter. I then about the middle of the month crowd the bees on to the smallest number of combs they can cover filling the space left with division boards. By the first of November at least, I pick my bees for the coming winter, and then leave them to their fate with the mode of winter preparation I have used for fifteen or more years. I have no fear for results, as during that time I have not lost a single full colony, and I winter exclusively on summer stands.

2. I have had no Syrian nor Holy Land bees.

3. Prior to the introduction of the new yellow races, a standard for the Italians was possible, but since their introduction, I think it doubtful. We shall have to depend largely upon the moral probity of queen breeders for our knowledge in regard to the matter.

4. I have not given the matter sufficient thought to enable me to express opinion that would be of any value.

5. I have begun, and partially concluded several experiments that I have thought might prove beneficial, but have not been able this season to conclude them satisfactorily to myself.

I shall continue them another year, and hope to be able to determine positively, some questions that are now somewhat in douot.

P.S. I believe fully that producers of honey have stood in their own light by trying to rush their products on the market, in order to get ahead of some one else. What we need more than anything is a New England Beekeepers' Association, well officered, and composed of men who will endeavor to mutually protect themselves.

ANSWERS BY P. H. ELWOOD.

1. Move them home this month.

2. No.

3. Am not familiar enough with the different races to say.

4. Supply and demand will regulate the honey market as everything else. I did not know that the price of honey fluctuated more than that of butter or cheese, recognized necessities. I again assert that at present prices more honey is sold below cost of production than above, counting every expense including a reasonable price for beekeepers' salary, and prices are still tending downward.

5. Have proved beyond a doubt that a given number of bees in this section would have gathered more surplus honey.

ANSWERS BY L. C. ROOT.

1. With me the last part of the present season has been very poor for bees and as a consequence, breeding was discontinued early and the stocks are somewhat reduced in numbers. I have united all light stocks to make them sufficiently populous. I have also fed all that were not heavy enough. All have choice queens and are in as favorable condition for winter as the season will allow.

The season being so unfavorable, most of the bees are old, which I consider unfavorable for successful wintering.

2. I have no Holylands or Syrians at present. I have two queens of a cross between the Caucasians and Italians. They are the only two stocks that continued breeding up to the present date on a limited amount of honey. I shall look with interest for the successful wintering of these stocks.

3. To the first part of this question I would say yes. It is difficult to give one's views clearly in the space allowed this department. I have not had sufficient experience with other races than the Italian to be a competent judge. With the Italian, the clear distinct bands and gentleness of disposition when properly handled are best proof of purity.

4. That we need a more substantial and better regulated market for our honey no one can doubt.

I think there is no one question of more interest to beekeepers generally than this. As a rule beekeepers are men of moderate means and their products must be sold promptly. If they would do more in the direction of establishing a home market, instead of sending their honey to the commission merchant with directions to sell it at once, better prices would be realized.

5. This question covers a vast amount of ground. One could hardly pass through a season of practical operations without learning some things which are of value to himself and would be to his brother beekeepers if they could come to them in a practical way. I have but one suggestion to offer in connection with this question and that is in regard to increase of stocks when surplus honey is desired.

Some of our best beekeepers advise allowing bees to swarm naturally; others advise doubling the number of stocks by artificial increase. I hardly see how practical beekeepers can recommend such practically. I am aware that it will work satisfactorily when the season is extremely good, but with such a season as we have just passed, it cannot be practised if surplus honey is to be secured to any extent.

With me it would have been far preferable to have united all light stocks in June rather than divide the stronger ones at the same date.

We must have populous stocks if we are to secure much surplus honey during a season like the present.

LETTER BOX.

Jenkintown, Pa., Aug. 12, 1884.

DEAR SIR,

Enclosed please find one dollar ($1.00) for renewal of my subscription to the Apiculturist with which I am well pleased.

The honey crop in this neighborhood, I think will not be more than about two-thirds of an average one, owing chiefly to too much rain in June.

One colony of hybrids stored some honey of a deep red color, having a very bitter taste; as did also another hybrid colony, though in smaller quantities, while my three colonies of Italians gave me only fine white honey, thick and rich. Can you inform me what the above mentioned red honey probably was? It looks almost like blood in the cells; and would you consider it safe to feed it back in winter, if needed.

Respectfully yours,

W. J. RASIN.

[We have noticed some of this red honey in the cells this season, but in very small quantities, and we are unable to answer the question; but would say that we always prefer wintering our bees on early honey (basswood or clover) or sugar syrup well capped, in preference to any other food. Will some friend please answer Mr. Rasin's question?—ED.]

New Smyrna, Fla.

DEAR SIR:

Our honey season for surplus closed 26th of July, the average surplus spring count being 115 lbs. per colony. As I intimated in a note to you in May last, my neighbor apiculturists were exercising with *swarms* during the mangrove flow of honey, to their discomfiture. A. J. GOODWIN, M. D.

Foxboro, Mass., Aug. 20, 1884.

DEAR LOCKE:

My bees have done fairly well this season; had eight colonies last fall, brought them all through the winter in good shape; *sold six* have eleven left, and one on 2½ stories, to divide which will give me twelve strong colonies from two, and about 500 lbs. of honey. These all came from two colonies, as the six were sold before I could use them to stock up with.

J. E. POND, JR.

Omaha, Neb., Aug. 13, 1884.

DEAR SIR:

Nebraska has no basswood honey this year and no other of consequence (except of dark and poor flavor) to date. Have had some honey dew. Our main crop, however, comes from heartsease (*P. persicaria*) which is just coming into bloom. No stocks on hand, and we shall have none to export notwithstanding our production has risen from about 12 tons surplus, in 1878 to 300 tons in 1883. We are trying hard to catch up to the demand for honest honey at fair prices. Yours truly,

T. L. VON DORN.

Alliston, Aug. 9, 1884.

FRIEND LOCKE:

The season in Canada, I believe, at the start promised well, but basswood was almost a total failure; and unless fall pasture turns out above the average, the yield, I believe will not average over fifty pounds to the colony and an increase in colonies of double the spring count, counting such as will be in good condition to winter.

R. F. HOLTERMAN.

Marshallville, Wayne Co., O.

DEAR SIR:

Though yet a boy on the farm, my noonday and leisure resort is to the apiary, which I have by degrees from almost nothing built up to 34 colonies; having constantly by the aid of added experience made it more remunerative and pleasant. I remember full well in my juvenile days when my playmate was presented with a musical instrument, and I wanted one also that I was soon consoled with a better present, a colony of bees in a red box hive. So much was I pleased with the present that a general quarrel ensued as to who had the best one. Though I sold them again for a dollar (and they died) still I loved them dearly and watched thoughtfully their wonderful ingenuity and industry until my father gave them to my care. Soon I had them all on movable frames and handled them as the dearest pets, and many an hour have I spent with them when the other boys were lounging around the village stores and groceries, among whom was my playmate who has, to my deepest regret, fallen into bad habits and is now a drunkard and spendthrift. True, I have had losses and might have given up in despair, but I have stuck to it, thus trying to learn the secrets of success and overcome the difficulties that present themselves. I believe that a man who is not willing to devote study and observation to them will never succeed.

This reminds me of a certain incident. A neighbor when I asked him as the yield from clover was drawing to a close, have you taken honey yet? replied, No. Are they at work in the sections? No, I think they will start soon though. By a little observation he might have seen that clover was closing and basswood a failure and have made preparations accordingly; just as Doolittle has been telling us about having a force of hands engaged to hoe corn when it was too early or late. C. WECKESSER.

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A Journal deboted to Scientific and Practical Beekeeping.

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Published Monthly. S. M. LOCKE, Publisher & Prop'r.

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BEEKEEPING IN AUSTRALIA AND NEW ZEALAND.

BY OUR NEW ZEALAND CORRESPONDENT.

THE beekeepers of these colonies owe so much to our American brothers that I cannot refuse your request, Mr. Editor, to furnish some items of news for your interesting journal.

Beekeeping is yet in its infancy in this quarter of the globe, but has made rapid strides during the past five years. Previous to that time bar-framed hives were almost unknown. But few had heard of comb foundation or extractors, and the black bees were popularly believed to be the only race of honey-gatherers. Happily, things are greatly changed now, bar-framed hives, comb foundation, extractors, smokers, sections, Italian bees and many other of the useful and ingenious appliances which have been brought into use in your country are to be found in considerable and rapidly increasing numbers here.

In the march of progress in these colonies, New Zealand leads the van, and can now boast of a real live *Bee Journal*, three associations of beekeepers, manufacturers of hives, and rearers of queens. We cannot boast a Langstroth, a Newman or a Locke, but we have a number of promising amateurs, whose names may yet be emblazoned on the scroll of beekeeping fame. In South Australia a Beekeepers' Association is being formed, with prospects of success. Victoria, New South Wales, and Queensland will not be long before they go and do likewise. We believe in the suitability of our climates and soils for producing bees and honey in such quantities as will amply repay the producer. Many parts of New Zealand, especially in the North Island, swarm with wild bees. The bushman and back-woods setter sometimes gather rich harvests of honey from the forest. The aboriginal natives also obtain, in the same way, quantities of honey, of which they are very fond and are very expert at taking. Many of the native trees and shrubs yield honey, but the quality is indiffer-

ent, of most of them, consequently bush honey is not even a second-rate article. There is, however, scarce a month in the year when bees cannot find honey and pollen in a mixed bush, which makes the proximity of bush to the apiary extremely desirable.

Bees winter in the North without any extra attention, unless in very bad seasons, and in the South with a warm covering and wood or chaff divisions.

Foul brood has made its appearance and in some localities is very bad. This is felt to be a great pity, but with proper attention it may be driven out; where wild bees are plentiful, however, this will not be easily done.

Having given you a few general items, I will leave matters of detail for future communications.

New Zealand, September 10, 1884.

THE MAPLE-BARK LOUSE.[1]

By Prof. A. J. Cook.

From very numerous inquiries as to name, habit, and remedies, regarding this louse, I have for some weeks intended to write you; but an overwhelming amount of work has prevented, until your letter drives me to it. Pres. E. Orton writes me that this insect is killing the soft-maples, and wishes a remedy. Mr. O. J. Terrill, from North Ridgeville, says they are affording much nectar, which attracts the bees, and seems excellent, and wishes to know if it is probably wholesome. The editor of the Coldwater (Michigan) *Republican*, asks if there is any way to save the maples. These are samples of a score of inquiries coming thick from Ohio, Illinois, Indiana, and Michigan.

The maple-tree scale or bark louse (*Pulvinaria innumerabilis*, Rath.) consists at this season of a brown scale about five-eighths of an inch long, which is oblong, and slightly notched behind. On the back of the scale are transverse depressions, marking segments. The blunt posterior of the insect is raised by a large dense mass of fibrous cotton-like material, in which will be found about 800 small white eggs. These eggs falling on a dark surface look to the unaided eye like flour; but with a lens they are found to be oblong, and would be pronounced by all as eggs at once. This cotton-like egg-receptacle is often so thick as to raise the brown scale nearly a fourth of an inch. These scales are found on the under side of the limbs of the trees, and are often so thick as to overlap each other. Often there are hundreds on a single main branch of the tree. I find them on basswood, soft and hard maple, and grapevines, though much the more abundant on the maples.

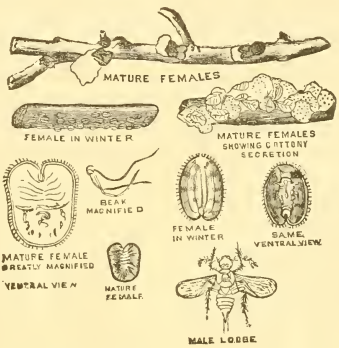
Another feature, at this mature stage of the insect, is the secretion of a large amount of nectar. This falls on the leaves below, so as to fairly gum them over, as though they were varnished. This nectar

[1] From *Gleanings*.

is much prized by the bees, which swarm upon the leaves. If such nectar is pleasant to the taste, as Mr. Terrell avers, I should have no fear of the bees collecting it.

From the middle to the last of June, the eggs begin to hatch, though hatching is not completed for some weeks after it begins, so we may expect young lice to hatch out from late in June till August.

The young lice are yellow, half as broad as long, tapering slightly toward the posterior. The seven



abdominal segments appear very distinctly. The legs and antennæ are seen from the other side. As in the young of all such bark lice, the beak, or sucking-tube, is long and thread-like, and is bent under the body till the young louse is ready to settle down to earnest work as a sapper. Two hair-like appendages, or setæ, which soon disappear, terminate the body.

The young, newly born louse, wanders two or three days, then inserts its beak into the leaves where it first locates. It prefers the middle under side of the leaf. In autumn the much-enlarged louse withdraws from the leaves and attaches to the under side of the twigs and branches, while on the leaves they sometimes, though rarely, withdraw their beak, and change their position. In winter, the young lice remain dormant; but with the warmth of spring, as the sap begins to circulate, the lice begin to suck and grow. The increase of size as the eggs begin to develop is very rapid. Now the drops of nectar begin to fall, so that leaves and sidewalks underneath become sweet and sticky. In the last *Ohio Farmer*, Mr. Singleton states that leaves of the maple do secrete honey-dew. It is on the leaves, and there are no aphides or plant-lice. Mr. Singleton's honey-dew is, without doubt, this same nectar from bark-lice. Had Mr. S. looked on the under side of the branches, instead of on the leaves, he would have found, not aphides, to be sure, but bark-lice.

If these spring lice are examined closely with a low magnifying power, a marginal row of hairs will be seen.

Some few of the scales in late July will be noticed to be dimmer, lighter in color, and somewhat more convex above. In these the setæ do not disappear, but may be seen projecting from the posterior end of the scale. In August, the mature males appear. These have the scales, have two wings, and are very active. Although the females are to continue to grow till the next June, coition now takes place. The males are seen for two or three weeks, though probably each individual does not live as many days. It is quite probable that, as in case of production of drone-bees and aphides, the males of these scale-lice are not absolutely necessary to reproduction. We know they are not in some species.

By use of a long-handled broom dipped in strong lye or soapsuds, the thickly gathered lice could be readily removed on the lower side of the branches at any time in the spring. This would kill the lice, and prevent egg-laying, or destroy the eggs already laid. The earlier this is done in the spring the better. The position of the lice on the under side of the branches makes this more practicable, if not the only practicable remedy at this season. On a few trees, or on small trees, this is no serious task. If this is neglected, or is thought to be too great a task, the trees may be syringed in early July, just when the young lice are most susceptible, with the following: one quart soft soap, ten quarts water, and one quart kerosene oil; stir all well together. This can be thrown on with a fountain pump. As the lice are mostly on the lower side of the leaves, it should be thrown from below upward. This also applies to other species of bark-lice, which are also very common this season. The basswood, the tulip (see my Manual, p. 249), the elm, the hickory, the blue-ash, etc., are all suffering from bark-lice, much like the above only that the cottony substance is wanting. It is a comforting truth, that all these species are often destroyed by their enemies before they entirely kill our trees, though they often do great harm.

Lansing, Mich.

LOOKING FOR EGGS.

By John Phin.

The presence or absence of eggs and the extent and mode of their distribution are sources of very valuable information in regard to the condition of a colony. Therefore any method, which will enable us to see the eggs more clearly and certainly, is of value. Those whose sight is not very keen will derive great aid from the use of a simple lens or magnifier of about 2½ in. to 3 in. focus. But even those whose sight is good often find it difficult to distinguish the eggs at the bottom of the cells. In most cases it will be found that the chief cause of

this indistinctness is the light which passes through the comb from behind. On dull days the amount of light which falls on the back of the comb is just equal to that which falls on the front. By placing some opaque object, such as a board, a slate, or even the hand, behind the comb, the eggs at once become beautifully distinct. In showing eggs and larvæ to visitors I place a black enamel cloth cover behind the comb and the effect is very striking.

Cedar Brae, Oct. 14, 1884.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(Continued from p. 226, Vol. II.)

ON THE ORIGIN OF BEES AND THEIR PROCREATION.

Now begins the second period of its life, which however may be better termed an inward life or sleep. During this period of thirteen days, Nature is busy in developing the future bee, which is now hidden in the worm which lies in the soft mass, and this, so to say, sleepingly, and without any help on the part of the insect. A creative miracle now happens in Nature the same as at the resurrection. The transformation of the worm takes place gradually in the course of thirteen to fourteen days, and in warm weather still sooner. It becomes a nymph or cocoon; that is, by degrees we see the parts or members of the future insect, yet not so far developed as to be of any use to the insect. They lie upon the chest without the slightest motion and covered with a soft, transparent skin which winds itself around the surface of all the parts or members so tightly that their form is already visible. In this new creation the neck and the head are seen first; then the middle of the body begins to grow smaller and thinner, and that before we anywhere see a sign of the feet and wings. After that, the eyes follow and lastly the four wings and the six legs. Now a new life begins, and the young bee, the late worm, comes forth as a perfect bee, at the latest the twenty-first day after its birth from the egg. With her head, she will push off the capping of the cell by gnawing and loosening it all around and glide out. If, as sometimes happens, the cover prove to be too hard, we shall see the old bees do the work of making room and helping her out.

In the first instance, the young bee seems to be a little stupefied and the hair covering is wet, so she begins to clean herself forthwith and the old bees lick her. She is then distinguished from the old bees by the color which, for a length of time is somewhat bluish. At first, they are fed for a day or two by the old bees through the mouth, as the bird feeds her young, until they begin to fly out which happens in about two days; for, already on the third day, we see them capable of collecting food,

building, and performing all the artistic occupations of their sex.

Directly after the young bee has emerged from the opening made in the cell, two old bees appear; the one will take the loosened cover of wax in her mouth, knead it, and utilize it elsewhere; the other will repair the cell, restore its hexagon shape, polish and clean it perfectly. Immediately after, honey is brought in, taken out again, and an egg is laid in the cell. In the course of six months, it will sometimes happen five different broods of young bees will be hatched from one cell.

Those of the young brood which show lameness or the least physical defect are expelled from the hive by the old bees without killing them; yet they will let them mercilessly die outside, for they are considered unfit to collect honey and also through fear that by their preservation the family of the republic might be injured.

There is no remarkable difference in the mode of hatching out the royal or queen eggs and those of the common bee, except that the cells of the former are more spacious and suspended and the food is better prepared and more nutritious than that fed to the latter; it is also so abundantly provided for that the worm actually floats in it. The nymph has its head turned downwards, and the food which fills the rest of the cell lies over her extreme parts. The finest, nutritive parts of the food are taken in through a sort of nipple-tube, the same as the young bird in the egg.

The hatching out of the eggs is the principal and most important employment, and as good parents they will care most attentively for all the eggs in general, but particularly so for those in royal cells; yet it will happen that several drone eggs are laid at the same time for the purpose of fructification of future queens.

Those who will not yet advocate or agree to the still authenticated opinion that queens may be reared from worker-brood, three days old, do pretend and insist that to prevent the drying up of the royal eggs, the bees do preserve them in the corner of combs and then will begin to hatch them out when a new queen is wanted, either when the old queen is actually lost (in which case a queen might be hatched out in mild weather in January[1]); or, again, on account of the danger of losing the queen through the repeated laying of eggs, or if the number of bees in the hive accumulates, or when the swarming time approaches. But this opinion, that the bees are capable of preserving eggs for future use to be hatched at pleasure or when needed, is erroneous, for the reason that bee eggs are not analogous with those of hens which

[1] In the beginning of this year on the third of January, I found before the entrance of a hive a dead queen which was beautiful and well-formed, but had no wings. I concluded that the hive was now queenless and immediately set it under a smaller hive. But the following night, however, its queen was killed and also lay dead before the entrance, whereby I was convinced that a new queen had been already reared before Christmas time, or that the family was enabled to rear a new queen.

latter are protected from drying up by the hard shell that envelops them. But especially can no bee eggs be preserved, because they are constantly surrounded by a degree of warmth, and by laws of nature the embryo of the worm must develop, and regarding this insect it actually does so within a couple of days.

Whereas a young queen sometimes fails to get out of the cell all safe and thus proves a failure, they will rear several queens at the same time, which often will prove a success, and then again all will fail. Often only with a single egg it is a success. For the royal eggs they will care most attentively, and if by the cold season a sufficient warmth cannot be maintained, or if by the small number they cannot attend to the whole, all the rest of the eggs are neglected or abandoned in preference.

Rodheim, Germany, July, 1783.

[*To be continued.*]

EDITORIAL.

"LARGE bodies move slowly" and no great reform is born in a day. Indeed, a system of government may become corrupt, and those who wish to see justice and right prevail, often toil on for years ere popular opinion supports them in sweeping out the corruption and establishing a reform.

For years the cause of apiculture has suffered almost every injustice and wrong from the hands of those who claimed to be its friends, and it has been impossible to remedy these evils, because the only mediums through which the beekeepers could be reached, were controlled by monopoly supply dealers who publish bee journals, the prime object of which is to advertise their own goods, and make the beekeepers and small dealers support their journals and pay for their advertising, while they "skim off all the cream" and leave for the rest only the "skim milk;" but the more lamentable feature is that these monopoly supply journals have assumed supreme command, dictating to the beekeepers the course that they shall pursue, often refusing to recognize an association or publish its reports unless they were in perfect accordance with the wishes of the editors of those journals.

For a number of years we have watched and studied these matters, as also the course taken by our leading bee journals; and, after carefully looking over the ground and counting the cost, we decided to enter into the field as an editor, and the result has been that for nearly two years we have been publishing the AMERICAN APICULTURIST and you, our readers, are perfectly well acquainted with the position that we have taken and held. We have always expected that the time would come when the other journals feeling the influence exerted by the APICULTURIST would be *bound* to recognize it; and, further, we have expected

opposition and have always been fully prepared to meet it. So that when Mr. Thomas G. Newman, in the *Bee Journal* for Oct. 15, strikes the first blow at the "Api," we are not in any way surprised. The trouble is this. Since we commenced to publish our journal we have placed over 15,000 sample copies in the hands of as many different beekeepers, and Mr. Newman begins to feel the influence that is being exerted by them; and recognizing the fact that the APICULTURIST will not die by being let alone, means to crush it as other journals, that have been started for the same object, have been crushed, but we wish to state for the benefit of Mr. Newman and others who are watching the progress of the "youthful bee journal of the east," that the "Api" has come to stay, and that during the coming season we propose to place sample copies of our journal in the hands of over 20,000 more beekeepers. We now have a list of over 10,000 good addresses of beekeepers, and further, we mean to keep at work at the roots of the great cause of apiculture, until we unearth and bring to the surface all the evils that are sapping its life-blood. We do not propose to reply to Mr. Newman here, but shall wait until after the convention at Rochester.

It is pleasing to us to know that Mr. Newman has been compelled to recognize the "youthful bee journal in the east," he fears, perhaps that it may live to grow to the stature of manhood, and be entitled to a position among the "more aged" of our bee journals. It is the first time that he has recognized us other than when he noticed our first number, and said that it made "a very creditable appearance," and even now he has entirely ignored or forgotten the fact that it has a name or location, but coming years may reveal even that to him.

Mr. Newman cautions his readers about that "youthful bee journal of the east," and states that if they endorse its platform and help to support it, ruin must come to them. It might be well to ask if the National Convention could be left in a much more deplorable condition than at its last session. No reports of the previous meeting were read, and no business of importance of any character was enacted. There may have been a good reason for this, but we fail to see it. Mr. Newman further says, "if you endorse any journal, it should be the one that I (Mr. Newman) publish, but I protest against it."

There is not a beemaster in America who will not acknowledge that no beekeepers' association in this country has ever been more true and devoted to the cause of apiculture and the interests of the beekeepers, or more just in all its actions than the North Eastern Beekeepers' Association, nor has any other accomplished any more for the cause which it represents; and will Mr. Newman kindly take the floor and explain (if possible) what he has ever done to merit the support of that association.

Indeed, we would ask him what he has not done either to control or crush it, because its action did not meet with his approbation, and if that association cannot endorse that or other like journals, how can any association do so?

The time has come when the beekeepers of North America must either endorse and support a journal which will prove true to their interests, or else say to the world that they are perfectly satisfied to be controlled and ruled by the monopoly supply dealers, who have been so largely responsible for almost every evil that has come to apiculture, even when they claimed to be working for and in the interests of the beekeepers.

We feel perfectly confident that every one of our readers who has a care for his own interests, or the welfare of apiculture, will send in his renewal as soon as his subscription expires, and encourage at least one more to join with him. You cannot afford to withdraw your support from the APICULTURIST so long as it proves true to your interests. If each one of you will take hold with us earnestly we can add 2000 or 3000 new names to our subscription list before February first. Read our club list, and go to work.

The first two volumes of our journal bound in cloth (in one volume) will cost you less than it would to pay for the binding of one volume, so that it will pay you to send your renewal and 75 cents extra, making 1.75, and secure them.

Let us hear from every one of our friends. Who is going to secure our prize offers?

THE APIARY.

THE following editorial from the pen of Mr. D. A. Jones in "Beeton World" is so valuable, that we use it in preference to writing anything for this department this month.

WINTER PREPARATIONS.

I have said a great deal in the WORLD of late about winter preparation, feeding, etc., but from the appearance of the weather it seems to me that it will not be amiss to call your attention to these, at least once more. The weather being very warm and there being little or no honey in the flowers in many localities, bees are not getting any honey; only those favored with fall bloom such as aster, golden rod, boneset, mints, and other fall flowers, can expect their bees to gather as much as they consume. During this weather large quantities of stores are consumed in brood rearing besides what is required for feeding the old bees. I have very little hope of even the strongest colonies gathering more than they consume even in the most favored localities, and I have now commenced feeding my own colonies for winter. Our method of procedure is as follows:—Take two pounds of sugar and one pound of water, or in that proportion; after bringing it to a boil, so that all the sugar is melted, and allowing it to cool, it is then ready for use. I am determined not to allow the feeding to be continued long at any one apiary. We used to make the syrup and divide it up among the various

apiaries as far as it would go, feeding that and waiting until more was prepared, which caused a large consumption of stores. Now I weigh the hives, ascertain how much they require to put them in shape for the winter. I then send to each apiary all the granulated sugar syrup that is necessary to prepare them for winter, and it is fed to them as fast as they can take it up, so that after we commence to feed they are never allowed to be idle until they have sufficient stores for winter. In this way we may have fed already over 10 bbls. of sugar to three apiaries, and shall continue doing so until every apiary has its complement of stores for wintering. By the above method we get their stores placed above the brood and sealed over early. This leaves the bees in finer condition for winter. Now those who neglect these winter preparations, although the weather at the present time is very warm, will be sorry for their neglect next spring, as bees prepared late in the season do not stand nearly as good a chance of wintering well as those prepared earlier; besides, after the brood is hatched out of the combs, instead of their sealing the honey above and leaving room for the bees to cluster below their stores, they place the food all over the combs in a scattered condition and do not cap them over, and the result is that moisture is usually condensed in this food, thus thinning it down so that it frequently becomes sour and disease follows. If the bees are fed at a time when no brood is in the combs and no probability of there being any for some time, they are liable to scatter their honey about promiscuously in the cells. When the cold weather sets in and the bees contract their cluster, much of the honey thus placed is not covered by the bees. That farthest from them is coolest and absorbs the moisture first, but in cool weather moisture condenses in all the combs, even that just outside the brood circle. Bees should be so prepared for winter that little or no unsealed honey remains in the hives, and none should ever be outside the cluster. It is desirable that they should have some in the cluster to carry them through the cold spells. Ten pounds of ripened and well sealed honey will keep a colony longer and healthier than twenty pounds of unsealed and improperly ripened. No amount of warmth can prevent poor results if the stores are bad. You may prepare your wintering house ever so carefully; you may pack your bees with the greatest care; you may arrange your ventilation on the most scientific principles, and in fact you may do all that can be done, and if your stores are bad the results will be unsatisfactory. I hope that no one will neglect the preparation of their bees until the 1st Oct., as is frequently the case and then ask, "What shall I do to prepare my bees for winter?" The wintering of bees must be commenced in August and September and their management during those two months decides their fate. No greater mistake can be made than leaving the preparation off till cold weather, as in many cases every effort is then useless.

CORRESPONDENCE.

ED. AM. APICULTURIST:

DEAR SIR,

I send you the following Report from the Beekeepers' Department of the Michigan State Fair.

Beekeeping is one of Michigan's growing industries. It has to a great extent passed the experimen-

tal state, and has been recognized as a business possessing both pleasure and profit. It is but a few years ago a few of the progressive beekeepers began to make exhibits of bees and their products at the fairs. It was a small beginning, and the premiums were small.

A few years ago the attention of the State Agricultural Society was called to this growing industry, and the persistent efforts of a few to make a creditable exhibition; and they, with their usual liberality, made a new department with a much larger premium list, giving the beekeepers a building to themselves, with competent judges to make the awards. It was an experiment with the Society, but with Mr. W. J. Baxter as superintendent of the department, everything moved off finely, and the exhibition proved a success. And to encourage the beekeepers to greater efforts, the Society increased the premium list to $300, the largest amount offered by any State Agricultural Society at that time. Mr. J. C. Shoemaker was made superintendent of the department, and he proved to be the right man in the right place, and it was the unanimous expression of all exhibitors, that Mr. Shoemaker was just the man for that department.

With the large and varied premium list, it brought out a large exhibit of bees, honey and beekeepers' supplies.

Mr. R. L. Taylor, of Lapeer, had on exhibition 4,317 lbs. of comb honey, besides bees, Given Foundation Press, machine for punching holes in frames, for wiring samples of foundation; bees, beehives, etc.

W. Z. Hutchinson, Rogersville, Mich., had 3,500 lbs. of comb honey, eight full colonies of bees, including Italians, Cyprians, Syrians, Carniolans and Blacks, a large collection of honey-bearing plants pressed and mounted, a large collection of bee literature, beekeepers' supplies, etc.

Elmer Hutchinson (a brother of W. Z.) had four full colonies of bees, honey plants, extracted honey, etc.

Dr. Besse, of Delaware, Ohio, fine collection of extracted honey, queens, nuclei of bees with queen, beekeepers' implements, comb honey, etc.

O. H. Townsdem, Armada, Mich., bee-hive, two fine pyramids of extracted honey, and case of comb honey.

Mr. Quick, Leoni, Mich., extracted honey in glass and tin packages, samples of comb foundation, bee-smokers, five cases of comb honey, and several other articles appertaining to bee culture.

E. Mason, Wagon Works, Ohio, foundation machine, and Given Press, samples of foundation.

H. D. Cutting, Clinton, Mich., case of bee literature, samples of the different varieties of honey, bee-hives, Langstroth straw hive sent by Mr. A. Hoke, Union City, Ind. (a new thing). Bee-feeders, queen-cages, sent by Henry Alley, received first premium, also first premium at Tri-State Fair at Toledo, O.

C. M. Weed, Chicago, Ill., collection of honey-bearing plants.

C. K. Hubbard, La Grange, Ind., Hubbard's patent bee-hive, finer than silk, and could be placed in more positions than a Congressman on the witness stand.

Last, but not least, came M. H. Hunt, Belle Branch, Mich., and from the extent of his exhibit he has been on a lively hunt all summer. He occupied the whole side of the building, 48 feet, with the largest and most interesting exhibit of this kind I ever saw.

He and his friendly assistant Mr. Chas. Collins, were kept busy from early morn till the building

was closed at night, answering questions, and explaining the different articles in his exhibit. The first to attract your attention on entering, was the large monument of solid wax, about 200 lbs., with the name Huber on the base. It was secured by Prof. A. J. Cook, for the government to send to New Orleans.

Next was the great pyramid of extracted honey, in every conceivable shape, in glass, tin, earthenware and paper, all decorated with fancy labels, a large number of cases of comb honey, and a large collection of apiarian implements. Mr. Hunt received many premiums; his first premium on section box for comb honey, was well placed, also premium on comb foundation. Mr. Hunt has the science of making foundation well learned; his samples were the finest I ever saw made on a roller mill.

It will be almost impossible to describe the whole exhibition. Those who did not see it missed one of the leading features of the fair. The building was filled to overflowing, so much so, that one man had to have a place built outside the building to accommodate, but the Society has promised a larger building next year, and one exhibitor has spoken for one whole side, be it large or small. The total number of entries for 1883 was 88. Total for 1884, 150; an increase of 62 entries.

The market valuation of the contents of the building was $2,780. 50. The number of exhibitors is increasing every year. One exhibitor from Ohio, who had been to the Ohio State Fair at Columbus, also the Tri-State Fair at Toledo, then to the Michigan State Fair at Kalamazoo, said Michigan beat anything he ever saw in the way of an exhibition.

The system of expert judging was tried for the first time in this department and, as far as known, gave the best of satisfaction. Dr. A. B. Mason, of Wagon Works, Ohio, with his usual good nature, filled the bill to a dot. All the premiums offered in this department were taken, besides a few discretionary ones. Among the many visitors, you could see the smiling, face of Prof. A. J. Cook, and his cheering words of "grand! grand!" went to many hearts present. James Heddon, Thomas Bingham, and daughter, Dr. Haskins, Dr. Southard, and many more of the old and new-time beekeepers were present. It is hoped that at the next State Fair the building will be filled with bees and their products, and all the paraphernalia necessary to carry on one of the growing industries of America.

H. D. Cutting.

Clinton, Sept. 27, 1884.

Dear Sir:

We send you the following report for 1884.

An untimely frost and cool weather made it necessary to feed more in the spring than ever before, this with an almost entire absence of fall honey was the only peculiar thing noticeable during the season. Never in my experience of seven years has the fall crop been so light; in some apiaries making it necessary to feed for winter stores, the bees having consumed all their winter supply to keep up brood-rearing. One of my neighbors has already fed 1200 lbs. back and will need more, he having over 300 colonies.

Cold weather and rains kept the bees from doing work, both in clover and basswood bloom. Where bees had access to basswood the average is better than last year, but where clover and fall bloom were the only dependence or where basswood was killed by frost, as

it was in some places, the yield was small indeed.

My home lot, 54 colonies, averaged 107 lbs. for those run for extracted against 75 lbs. last year and 70 lbs. for those run for comb.

Of two lots in which I have an interest, each having about the same number as the home lot, one right in the basswood gave 100 lbs. average; the other had two to four miles to go to get basswood and only gave 80 lbs. average, against 110 and 100 lbs. last year.

So you see we have made quite a crop after all.

C. A. Hatch.

Ithaca, Richland Co., Wis.

EXCHANGES.

Apiculture and Agriculture, by T. J. M.—The "British farmer" has always been credited with a talent for grumbling, and it must be admitted that his patience is often enough put to the test. In the old country, under the full operation of a game law system, he has been accustomed to see his substance more or less wasted by birds and beasts strictly preserved for the pleasure and profit of others, and even if he cast his lot in the "Britain of the South" he may have reason to remark that pheasants, for example, are not the most desirable class of visitors to his garden, and if the introduction of hares should be encouraged (as has been more than once proposed by some lovers of sport) he would probably have but little satisfaction in cultivating either garden or orchard. We all know what dimensions the "rabbit nuisance" has attained to in the southern island. The peculiar circumstances of this Colony as to climate, and the scattered nature of the settlement and cultivation of the land are calculated to intensify the mischief in such cases as the above, the climate being so favorable to the rapid increase of the animals, and the large tract of bush and waste lands affording them unlimited cover whence they may issue and, as it were, concentrate their attack on the comparatively small patches of cornfields, gardens, and orchards. Here, too, the farmer may find wandering cattle, not merely straying, but actually turned adrift by their owners to seek a living where they can find it, and whose chief instinct appears to be a desire to injure his fences and break down his trees; he may on occasions (fortunately rare ones) find a host of caterpillars marching across his paddock and leaving no food for his stock behind them; or he may chance to see a cloud of young birds spread over his newly-sown field, making a premature harvest in a way never intended by him. In all these cases he suffers a certain amount of actual damage, and although some of the trespassers, such as the small birds, may find champions to defend their character, and point out that they do some good in other ways (which may or may not counterbalance the harm they occasion), still most people will be free to admit that others, such as caterpillars, hares, rabbits, and stray bulls can only be looked upon as unmitigated evils. There is, however, one class of trespasser, if such a name may be applied to it — the honey bee, against which the aforesaid British farmer is sometimes found complaining, although its visit in fact only brings him unmixed advantage.

It is not perhaps surprising that at the first blush of the matter, the agriculturist should form some vague idea that he was being injured in consequence of a lot of

bees gathering honey on his lands, to be taken away and stored up for the benefit of other parties. A case may be supposed where the owner of an apiary has little or no land of his own, except that upon which his hives stand, and yet is known to send away many tons of honey each season, all gathered from the fields of his neighbors. These neighbors, supposing them to be not very well-informed, might naturally jump to the conclusion that the honey belonged by right to them, and even that there was so much of the *substance of their soil* being taken away from them year by year, and that their land must therefore become impoverished. If, however, they possessed such an amount of knowledge as ought to be considered indispensable for intelligent agriculturists working on rational principles, they should be able, upon reflection, to see that such ideas were entirely groundless. Nevertheless, it would appear that the required modicum of reflection is not always given to the subject, because the complaint is sometimes made, in a more or less vague manner by persons who ought to know better, and even beekeepers appear sometimes inclined to adopt an apologetic tone, seeking to argue that "bees do much more good than harm," instead of taking the much higher, and the only true ground, by asserting that bees, while conferring great benefits on agriculture, *do no harm whatever*, and that the presence of an apiary on, or close to, his land, *can be nothing but an advantage* to the agriculturist.

The benefits arising to the agriculturist from the labor of the bee are now so generally understood and acknowledged that it might, perhaps, be sufficient here to mention them without citing any special authorities to prove the facts. Formerly the bee may have been admired only on account of the epicurean taste with which it sought out, and the industry with which it stored, the sweets obtainable from blossoms of all sorts. Later, when botany became a science, it was discovered that insects of many sorts, but above all the honey bee, performed a part in the fertilization of the blossoms visited by them; but it is not so very long ago since physiologists became fully aware of the great importance of this intervention of insects, leading as it does not only to the simple fertilization, but to the *cross-fertilization* of plants. It is found to be a law of nature in the development of vegetable as well as animal life, that in-and-in breeding tends to the deterioration of the species, hence the desirability in all cases, and the absolute necessity in some instances, of cross-fertilization in the vegetable kingdom, and as the individual plants have no volition and no power of changing their position, the end can only be obtained by means of insects carrying the pollen of one plant to the pistil of another of the same species. It is now recognized by all botanists and physiologists as indisputable that the saccharine matter is supplied to the nectaries of flowers for the special purpose of inducing the visits of insects, the most efficient of which is the honey bee. The most beautiful arrangements are found in some plants to insure a cross-fertilization by depositing the honey in such a position that the insect can only reach it after having passed the pistil, and only upon leaving the nectary has to rub itself against the anthers, and so charge itself with pollen to be conveyed to the pistil of the *next* plant which it visits. How wonderfully the instinct of the honey bee adapts it to perform this office of cross-fertilization may be seen by any one who will watch the movements of bees

gathering honey in a field where several honey plants are in bloom at the same time. If, for instance, as may have been seen in many places during last season, honey is being gathered from clover, dandelion, and thistle blossoms in the same field, the observer can satisfy himself that each bee restricts itself to one sort of blossom for the time. It will go from clover to clover, from dandelion to dandelion, or from thistle to thistle, but will never go from clover to dandelion, or from clover to thistle, and so on. It performs its appointed work methodically, in accordance with the instinct implanted in it by an all-wise Creator; and it may be fairly asserted that, when it carries off the honey from any blossom which it has visited, it is merely taking with it the fee or reward provided by nature for that special service.

The important assistance to be obtained from bees in fruit growing is well illustrated in the lecture of Mr. Frank A. Cheshire, published in the *British Bee Journal*, and quoted at page 94 of our first volume. All the assertions made above as to the advantages of cross-fertilization will be found to be supported by the authority of Professor A. J. Cook in his article upon "Honey Bees and Horticulture," published in the *American Apiculturist*, and which has also been reprinted at page 96 of the first volume of this JOURNAL. Unquestioned authorities on this subject are Sir John Lübbock and Darwin. The latter in his work on "Cross and Self Fertilization of Plants" gives the strongest evidence as to the beneficial influence of bees upon clover crops. At page 169, when speaking of the natural order of leguminous plants, to which the clovers belong, he says:—"The cross seedlings have an enormous advantage over the self-fertilized ones when grown together in close competition; and in chap. x, page 361, he gives the following details of some experiments, which show the importance of the part played by bees in the process of cross-fertilization:— "*Trifolium repens* (white clover). Several plants were protected from insects, and the seeds from ten flower-heads on these plants and from ten heads on other plants growing outside the net (which I saw visited by bees) were counted, and the seeds from the latter plants were very nearly ten times as numerous as those from the protected plants. The experiment was repeated in the following year, and twenty protected heads now yielded only a single abortive seed, whilst twenty heads on the plants outside the net (which I saw visited by bees) yielded 2290 seeds, as calculated by weighing all the seeds and counting the number in a weight of two grains. *Trifolium pratense* (purple clover). 100 flower-heads on plants protected by a net did not produce a single seed, whilst 100 on plants growing outside, which were visited by bees, yielded 68 grains weight of seeds, and as 80 seeds weighed two grains the 100 heads must have yielded 2720 seeds."

Here we have satisfactory proof that the effect of cross-fertilization, brought about by bees, upon the clover and other plants growing in meadows and pasture lands, is the certain production of a large number of vigorous seeds, as compared with the chance only of a few and weak seeds if self-fertilization were to be depended upon. In the case of meadow cultivation it enables the farmer to raise seed for his own use or for sale instead of having to purchase it; while, at the same time, the nutritious quality of the hay is, as we shall see further on, improved during the process of ripening the seed. In

the case of pasture lands, such of those vigorous seeds as are allowed to come to maturity and to fall in the field will send up plants of a stronger growth to take the place of others that may have died out, or to fill up hitherto unoccupied spaces, thus tending to cause a constant renewal and strengthening of the pasture. The agriculturist himself will be the best judge of the value of such effects. —*The New Zealand and Australian Bee Journal.*

(*To be continued.*)

Feeding Bees on Dry Sugar, by Samuel Simmins. — For some years past I have striven to solve the problem of feeding dry sugar to bees, and at last I am pleased to be able to record that I have a system of stimulative feeding which enables me to give the sugar in such a manner that there is not the slightest waste; the food is placed where it is readily accessible to the bees at all times, and during any weather. I am saved all cooking, my feeders cost me nothing, and require attention less often than is necessary to examine hives during stimulation. I find it no small advantage to be able to dispense with the daily "round" with the syrup can, and have nothing sticky about.

All my dummies are composed of a frame of the usual size, but 1½ inches wide, or thick; one side is closed entirely with a board ¼ inch thick, while for the purpose of feeding, the other side has a piece also ¼ inch thick, reaching from the bottom to within ¼ inch of the top-bar, for the bees to enter by the slot thus left, and this board is fastened by a wire nail at each end near the bottom edge, permitting it to open out as if on hinges. When closed, a wire nail is also driven nearly home through the frame at each end, near the top edge. These nails, thus arranged, form a most simple but effective hinge and fastening, and those for the latter purpose are readily withdrawn with the pinchers when necessary.

When ready, the box is filled up level with the slot with genuine Porto Rico sugar, and then placed to one side of the brood-nest, acting as an ordinary dummy. Each holds nearly three pounds at a time, and according as one is almost emptied, another "dummy-feeder" is inserted at the other side of the brood-nest. At the same time a sheet of American cloth is placed next above the frames, and on this more than sufficient water will condense to enable the bees to reduce the sugar to syrup; this they will do but little faster than it is required for brood rearing, and the queen is never crowded out; while the stimulation is so great that, if sufficient old stores remain in the combs, spring feeding by this means need not be commenced until nearly a month later than with syrup feeders, and even then those colonies having the dry (or rather moist) sugar will take the lead.

The most perfect system of stimulative feeding with syrup is that of giving a "gentle, continuous, supply," introduced, and so persistently advocated, by Mr. Abbot. By that plan we permit only a few bees to work at the syrup at one time; and while they know they have a constant flow, they do not know how much there is behind, hence they proceed too cautiously as compared with my box-feeder, wherein many hundred can work at the food, being aware that they have a large quantity to depend upon; thus a higher temperature is induced, and brood-rearing goes on just as it does during a honey flow.

The boxes must not be wider than the size given, or comb will be built in them; and if three pounds are not sufficient at one time, more feeders can be added. It must also be understood that the bees are to be crowded on to these feeders, just as they are (or should be) on to the ordinary dummies. When crowded with bees working at the sugar, these combination dummies are warmer than with chaff-packing; but for winter any kind of warm material can be inserted if thought desirable, then turning the slotted side away from the bees. The Porto Rico sugar is to be used only in spring and for producing young bees in autumn; but for winter stores the best grade of Demerara will answer admirably, keeping at least two full boxes in at one time for fast feeding.

It is not my intention to enter upon any discussion on this subject. With myself dry sugar feeding is no theory, but an accomplished fact; and while some few will probably be unable to carry it out, the bulk of intelligent beekeepers, especially those with large apiaries, will acknowledge that that the system has great advantages.—*British Bee Journal.*

NOTES AND QUERIES.

—Do not fail to read our prize and club offers this month and let every subscriber try and secure one of them.

—Mr. Richard Grinnell of Baden, Mo., kindly sent us the list of premiums offered to the beekeepers at the fair at St. Joseph, Mo., which appeared in our last number. He also extended to us on behalf of the Association a cordial invitation to be present at their convention. While we regret that this was impossible, yet we extend our cordial thanks for the honor conferred upon us.

—Mr. P. F. Rhodes sent us a few bees in a cage, but did not state whether they were Italians or not. I should pronounce them Italians. Their tongues measured .230 of an inch. We had a lot of bees from Mr. Knickerbocker of Pine Plains, N. Y., whose tongues measured .235 of an inch.

—We learn that Prof. A. J. Cook, of Lansing, Mich., has been given $300.00 with which to fit out a display of everything required in the bee business; also for an exhibition of the different races of bees, methods of putting up honey, etc., at the New Orleans Exposition which commences Dec. 1, and continues until May 1, of next year.

We are pleased with this arrangement and feel certain that it could not be placed in better hands; and we shall expect, from what we know of our friend the Professor, that he has arranged the best beekeepers' exhibit that was ever displayed on this continent.

—We clip the following notes from our exchanges.

—A Bee and Honey Exhibit.—At the Virginia State fair at Richmond, which opened October 22, one of the principal attractions was the bee and honey exhibit. This feature was shown under a mammoth tent, 40 by 60 feet, with an annex 12 by 20. One exhibitor shows 18 cases of living bees, representing 12 species or varieties, with their queens and progeny. In addition one of the latest and best systems of queen breeding was fully demonstrated and explained. In fact, the display was a model apiary, conducted on scientific principles by one of America's beekeepers, who has spent over thirty years in the study of the bee.

—One of the most attractive exhibits at the fair is that made by Mr. Charles H. Lake, manager of Sunny Side Apiary. He had on exhibition twelve species of bees, several of them entirely new varieties, specimens of his patent hives, which he purposes sending to the New Orleans exposition, his wax refiner, which is a curiosity, and a specimen of the old gum-wood hive, in which the bees had to be killed to take the honey. Also, the hive which King Otto of Greece sent to Richard Colvin, formerly a noted bee-raiser of Baltimore. His queen breeding department, where is shown how the bees make a royal cell, is plainly shown through the glass sides of the boxes, in which, if two queens come forth, the first kills her royal sister. Mr. Lake also has on exhibition a hive of Bellzona bees, purchased from him by Mr. Maslin, of Sandy Bottom, Baltimore county, which made 391 pounds of honey during this season. Included in the collection which Mr. Lake exhibits is a pyramid of comb honey, from Mrs. Neal, of Hughesville, St Mary's county, raised by Mr. Lake's process, and for which Mrs. Neal took the first premium. He also has 3,000 pounds of honey raised from thirty swarms of bees this year in the perfection boxes.

The first premium for honey was given to Mrs. C. C. Perry, of Harris's Lot, St. Mary's county, for honey raised by Mr. Lake's process, and honorable mention was made of an exhibit of honey by Mrs. R. Cuyler, of Rapidan Station, Va.

—The following resolution passed at the late convention of the North American Beekeepers' Association speaks for itself.

"*Resolved*, That, while by no means disparaging the value and usefulness of other bee journals, we, as beekeepers in convention here assembled, recognize in the "American Apiculturist" a paper worthy of our support and would recommend it to the beekeepers as one of the best bee journals published in the interest of beekeepers."

—As we have given so much space to the Reports of the Rochester convention we shall be compelled to omit the Question and Answer department for this month.

— The Michigan State Beekeepers' association will hold their next annual meeting in the Capitol building at Lansing, Dec. 10 and 11. Committees are at work receiving reduced railroad rates and hotel accommodations. For any special information address H. D. Cutting, Sec'y, Clinton, Mich.

— Those who find on the wrappers of their journals an × will know that their subscriptions expire next month and will please renew promptly so as to cause no delay. It will cost you less when sending your renewals for 1885 to send 75 cents additional and secure Vols. 1 and 2 bound in cloth (in one vol.) than to have one volume bound. It will pay you to secure this reduction.

— The other journals have endeavored to crush our every attempt to establish an independent bee journal and have said that the beekeepers would *never* support such a journal. Now, you, our readers, must either accept these statements as true and acknowledge that three or four monopoly supply-dealers shall control all of the conventions and bee literature, or else by standing by our honest endeavors to publish such a journal prove to them that the beekeepers of America can, and will support and sustain a journal which shall represent their interests. To do

this, each one of you is going to try to send one or more new subscriptions and also to secure a prize for so doing. Read our list.

— Since sending out our October number, cheering and encouraging letters are coming in from every quarter assuring us that the beekeepers mean solid work for the "Api" and their interests, during the next few months. Some of our readers wonder how we can sell Vols. 1 and 2 of the "Api" bound in cloth (in one vol.) together with the "Api" for 1885, 768 pages of reading matter, for $1.75, but we can and will do it. After February 1, we shall raise the price.

— The Northwestern convention lately held at Chicago was a very interesting one and we shall refer to it next month.

CONVENTION NOTES.

REPORT OF THE ONTARIO BEEKEEPERS' ASSOCIATION.

(*Continued from p. 237, Vol. II.*)

THURSDAY, 10 A. M., SEPT. 18.

An amateur enquired why drones were driven to cluster at the entrance so as to smother bees. In reply it was stated bees were excluding the drones after the honey season, and no beekeeper present knew of a case where it had the effect of smothering the bees in the hive.

Are drones Italian from an Italian queen mated by a Holy Land drone?

Mr. Jones and others never noticed any difference between these and drones from a queen mated by an Italian drone. This brought out that Mr. Wells of Phillipstown, in order to obtain early drones, had put unmated queens into winter quarters, thus to have drone-laying queens. These colonies had plenty of drones when taken out of winter quarters. He at once reared queens to mate with these drones, but failed in his object, and these queens mated with other drones when they appeared some time after. He believes such drones are of no use.

Do queens mate more than once in a lifetime?

Mr. Wells stated if the drone organs were removed from the queen the same day, she would go out again sometimes. Mr. Jones stated a queen had been known to mate several times.

MARKETING OF HONEY.

Mr. Jones stated there was no difficulty in disposing of honey. Several English buyers had been negotiating with him. He had made one shipment. What should be done is as follows:—

Fix upon a day and place, from which a shipment shall be made, let producers bring their comb and extracted honey there; here let all honey be graded and packed in such a way as to suit the taste of the British market, let one man see it carefully taken from the cars upon arrival at port and stowed on board the vessel, and upon its arrival in England let the handling be again seen to in this way. There would be no danger in shipping. It is owing to adulterations, *not by the producer*, that American honey is not in greater demand in Europe.

THURSDAY, P. M., SEPT. 18.

The committee for the purpose of maturing a scheme for organizing local societies and for affiliating the same with this association, met on the exhibition grounds at 2 P. M. 18th inst., Jacob Spence in the chair. After a long discussion the committee were unanimous in the scheme that it is desirable that the local associations should affiliate themselves with the Ontario Beekeepers' Association and that steps should be taken to gain that object, and they decided to place before the association at their meeting this P. M., the advisability of approaching the local societies formed, and inducing localities without such societies to organize, offering them the following terms:—

$1.00 to give them the organ of the Ontario Beekeepers' Association for one year, membership of the local society and the Ontario Beekeepers' Association, and allowing them to draw to the amount of twenty-five cents for every member, to pay their local expenses. The committee would recommend the appointment of a committee to communicate with such localities for the completion of the scheme.

Moved by Mr. Mott of Norwich, seconded by W. C. Wells of Phillipstown, that the report of the committee for the organization of local societies be adopted, and that the mover and seconder with the president be a committee to carry out the recommendation in the report.

Mr. Jones then stated he believed the time had now arrived when we should obtain from the government, incorporation and a grant to assist us. The poultry, dairymen, and other associations have such a grant and incorporation, and the beekeepers are doing more to increase the interest in that line than any of the others. Our product is a clear gain to the country, and he has no doubt the government will do the necessary thing; he therefore moved that the requisite steps be taken. This motion was seconded by Mr. J. C. Campbell of Cayuga. *Carried.*

Moved by Mr. Wells, seconded by Mr. Mott, that in the opinion of the meeting, the danger to the beekeeping industry from foul brood is of such magnitude that it is imperative that steps be taken to procure legislation for its suppression and that the Executive Committee of this association is hereby instructed to use every means to procure the necessary legislation during the next session of the local legislations. *Carried.*

Moved by Mr. Spence, seconded by Mr. Jones, that it is desirable that the directors of local exhibits should offer prizes so as to promote honey exhibitions, and that the secretary be instructed to send copies of the resolution to county and township agricultural societies. *Carried.*

Moved by Mr. Jones, seconded by Mr. Wells, that the prize list be revised, and prizes, given heretofore for supplies, be given for honey, and amateur beekeepers be encouraged. *Carried.*

After the usual thanks to the press, and to the city of Toronto for use of rooms, the retiring officers for services during the past year, which were warmly given, the meeting adjourned until Tuesday evening, the second week of the Toronto Industrial Exhibition, next place to be announced beforehand.

R. F. HOLTERMANN, *Sec'y.*

REPORT OF THE NORTH AMERICAN BEEKEEPERS' ASSOCIATION, HELD AT ROCHESTER, N. Y., OCT. 28-30.

It was unfortunate that we were obliged to hold the late convention during the heat and excitement of an approaching presidential election, as many of our most prominent members were obliged to be absent on this account. It was also a little surprising that our western friends failed to put in an appearance, as it would have been very pleasant to have had them with us.

Notwithstanding all these difficulties with which we had to contend, the convention was a success. Our Canadian friends turned out in large numbers and that added largely to its interest and success. Indeed, it seemed as though we were carried back again to the meeting at Toronto.

The fact that the Secretary was absent who held the Reports and Constitution and By-laws made it rather difficult for a time to start matters aright, but these drawbacks need not appear in the future, and we hope will be looked after better than in the past.

It was quite evident at the first, with those who do not read the "Apiculturist," that the editorial of Mr. Newman, in which he misrepresents our statements and misconstrues our meaning, had its effect, and many of our best friends were prepared to expect that our motive in attending was to breed disturbance instead of union; but we are proud to say that the convention handled every question brought before it in a noble, generous and kindly spirit endeavoring to impart the most good to the largest number.

We are further pleased to know that we, the beekeepers of the east, were able to hand the association back to our western friends in such a condition as to show them that their interest is our interest and their welfare our welfare; and that, instead of disorganizing, we mean to build up and improve our system of association work, and not to assert sectional control to the injury of the association. It would be impossible to express properly our heartfelt gratitude to our friends, the members of the National Association, for the noble and generous spirit they manifested toward the "Apiculturist." They did all that we have ever asked and that was to place it on an equal

footing with the other journals. If we ever had a doubt regarding the success of our undertaking, it was dispelled by the genuine encouragement that was tendered us while at Rochester.

It was certainly interesting to listen to the touching remarks of the Rev. W. F. Clark of Speedside, Ontario, relative to the memory of the lamented Moses Quinby, and these remarks are but the pattering raindrops of the coming shower of credit which has been so long delayed and give evidence of the reform which shall place American apiculture, as a sister to agriculture, in a position to demand the attention of the people and our government. Further, it bears us out in the position we have taken that the names of Moses Quinby and the Rev. L. L. Langstroth should stand side by side in the history of apiculture in America,— the one (Moses Quinby) as the father of practical apiculture in this country; the other (our Langstroth) as the inventor of the movable-frame hive.

We can only hope and urge that the efforts made at Rochester to make our North American Association an association of delegates and representative in its character be endorsed and seconded by our western friends, to whom we have intrusted the completing of the work.

We take great pleasure in thanking our Canadian friends for the genuine sympathy and encouragement that they extended to the "Apiculturist,"— all the more valuable, coming as it did from those who are known to be among the most prominent and successful apiarists in Canada. We shall endeavor, in conducting our journal, to show our appreciation of such confidence on their part, so that they may never have just cause to regret the position they have taken in endorsing and supporting it.

We shall be unable to give more than a portion of the reports this month. The election of officers resulted as follows:

President— L. C. Root, Mohawk.

First vice-president— H. D. Cutting, Clinton, Mich.

Vermont, A. E. Manum; Massachusetts, J. E. Pond; New York, W. E. Clark; Pennsylvania, Arthur Todd; New Jersey, A. J. King; Delaware, W. J. Gibbons; Virginia, J. W. Porter; Georgia, J. P. H. Brown; Florida, W. S. Hart; Mississippi, Dr. O. M. Blanton; Louisiana, Paul L. Viallon; Texas, Judge Andrews; Kentucky, W. C. Pelham; Tennessee, W. P. Henderson; Ohio, A. I. Root; Illinois, Dr. C. C. Miller; Iowa, O. O. Poppleton; Missouri, C. M. Crandall; Wisconsin, Geo. Grimm; Kansas, Jerome Twichell; Nebraska, M. L. Trestor; Ontario, S. T. Pettit; Manitoba, Chief Justice Wallbridge; Quebec, H. F. Hunt; Dakota, A. W. Edwards.

Treasurer— C. F. Muth, Cincinnati, Ohio.

Secretary— W. Z. Hutchinson, Rogersville, Mich.

Executive Committee— L. C. Root, H. D. Clinton, C. F. Muth, W. Z. Hutchinson, *ex officio*, and Miss Lucy A. Wilkins and A. B. Weed.

The Committee of Arrangements for the next association meeting was named as follows: A. B. Weed, Detroit; H. D. Cutting, Clinton, Mich.; A. J. Cook, Lansing, Michigan; W. Z. Hutchinson, Flint, Michigan; and Jas. Heddon, Dowagiac, Michigan.

The following parties were enrolled as members:

Thomas Pierce, Gansevort, N. Y.; S. B. Wheeler, Union City, Pa.; U. E. Dodge, Fredonia, N. Y.; L. C. Root, Mohawk, N. Y.; G. H. Ashby, Albion, N. Y.; W. Bacon, Delta, N. Y.; C. J. Densmore, Livonia Station, N. Y.; E. C. Campbell, Cayuga, Ontario; G. W. Patting, Scipioville, N. Y.; R. Bacon, Verona, N. Y.; O. G. Russell, Albion, N. Y.; M. M. Wright, Castile, N. Y.; J. Van Deusen, Springbrook, N. Y.; Geo. K. Wright, Cambria, N. Y.; W. E. Moulton, Alexander, N. Y.; Miles Morton, Groton, N. Y.; Jesse Mekeel, Poplar Ridge, N. Y.; Arthur Todd, Germantown, Pa.; Geo. M. Lawrence, Warsaw, N. Y.; Theo. O. Peet, Brooklyn, N.Y.; J. A. Andrews, Phila., Pa.; E. W. Thompson, Hinsdale, N. Y.; Chas. S. Hurlbut, West Bethany, N. Y.; W. L. Coggshall, West Groton, N. Y.; E. W. Landon, Brockton, N. Y.; W. G. Fish, Ithaca, N. Y.; Charles Faville, South Wales, N. Y.; O. G. Smith, Seneca Falls, N. Y.; O. H. Sage, Churchville, N. Y.; William Bray, Gainesville, N. Y.; Ed. Hutchinson, East Avon, N. Y.; Elias Mott, Norwich, Ontario. F. C. Burmaster, Irving, N. Y.; Dr. J. P. H. Brown, Augusta, Ga.; L. S. Newman, Peoria, N. Y.; S. M. Puhl, South Toledo, Ohio; N. N. Betsinger, Marcellus, N. Y.; Ira Barber, De Kalb Junction, N. Y.; Sidney C. Sleeper, Holland, N. Y.; J. Vandervort, Laceyville, Pa.; C. C. Van Deusen, Sprout Brook, N. Y.; J. L. Schofield, Chenango

Bridge, N. Y.; Geo. Wickwire, Weston's Mills, N. Y.; Will Ellis, St. David's, Ontario; W. L. Foster, Warner's, N. Y.; S. T. Pettit, Belmont, Ont.; Miss Louisa Pettit, Belmont, Ont.; Louis H. Baumister, Rochester, N. Y.; J. B. Hall, Woodstock, Ont.; Mrs. Thomas Whiteneck, Tuscarora, N. Y.; Thomas Whiteneck, Tuscarora, N. Y.; J. D. Weaver, Penfield, N. Y.; W. F. Clark, Speedside, Ont.; F. C. Benedict, Perry Center, N. Y.; Mrs. F. C. Benedict, Perry Center, N. Y.; W. C. Clark, Oriskany, N. Y.; C. R. Isham, Peoria, N. Y.; Geo. W. Stanley, Wyoming, N. Y.; J. E. Stanley, Wyoming, N. Y.; S. M. Locke, Salem, Mass.

The first session was called to order at 2 P. M., Oct. 28, and as the president, Rev. L. L. Langstroth, was unable to be present, the vice president, Mr. L. C. Root of Mohawk, N. Y., took the chair and opened the meeting with a few very interesting and appropriate remarks regarding our honored president and expressive of his deepest regrets that Mr. Langstroth could not be present with us. He also referred to a letter that he had received from the secretary stating that he could not possibly be present and suggesting that the time of the convention be devoted more largely to the discussion of important questions than to the reading of long papers.

Mr. Root then suggested that a committee of arrangements be appointed to make all necessary preparations for a complete program for the coming sessions of this convention, after which Mr. Frank C. Benedict of Perry Centre was appointed secretary to serve in the place of Mr. Miller who was absent. It was then moved and carried that the secretary be empowered to select two assistant secretaries if needed.

Mr. Root then delivered the following address of welcome:

In welcoming the beekeepers of North America here to-day, I do it with mingled feelings of pleasure and deep regret. I am indeed thankful to the members of this association who met one year ago at Toronto, for the honor of being chosen first vice president of this body of beekeepers. This appreciation is the greater because this position is second only to his whom every progressive beekeeper delights to honor.

While I am thankful for the good cheer which comes to me through these associations I most deeply regret that our honored president, the Rev. L. L. Langstroth, cannot be with us and preside over these meetings. I feel that the heart of each one present must beat in sympathy in the sadness which comes to us in the disappointment we feel in not being able to welcome our veteran friend to his appropriate place. I wrote to him not long since in the hope of the possibility of his attendance, but while the reply came in his own handwriting, it was as follows:

OXFORD, OHIO, *October* 6, 1884.

MR. L. C. ROOT:

My Dear Friend — Many thanks for your very kind letter. My head is some better, but not enough so to allow me to do any work. I suffer so much I lie down most of the time. Under these circumstances you will see that it is impossible for me to attend the convention. I can only express my good wishes to those who attend.

With kind regards to yourself and family.

Your sincere friend,

L. L. LANGSTROTH.

I present you this letter that you all may know the condition of our friend, who for so many years has done so much that we of to-day may conduct our beekeeping according to more scientific and improved practical methods. Let us not fail to be appreciative of these privileges and mindful of our aged friend who is worthy of all honor.

Brother beekeepers, we are here to represent the best interests of the beekeepers of the United States and Canada. Let us see to it that our discussions are considerate and just to all; that they may tend to better methods that shall raise the standard of beekeeping to a higher, broader and more permanent plane than it has ever before occupied.

In behalf of the members of the Northeastern Beekeepers' Association, who have been working earnestly and many of whom are present anxious to do all in their power to make this meeting a pleasant and profitable one, I again welcome you all to this beautiful city of our Empire State.

Mr. W. E. Clark of Oriskany, N. Y., then moved that a committee of five be appointed which shall act as a committee of arrangements. This motion was carried and the following gentlemen were appointed: Mr. W. E. Clark of Oriskany, N. Y., Arthur Todd of Philadelphia, Pa., Ira Barber of De Kalb Junction, N. Y., J. B. Hall of Woodstock, Ont., Can., and T. O. Peet of Brooklyn, N. Y. On motion of Mr. W. E. Clark, Mr. Bacon was appointed to act as treasurer *pro tem.*

Mr. W. E. Clark asked the convention if there were any reports of the last meeting. Mr. W. F. Clark in answer stated that he had taken reports that appeared in the "American Bee Journal," and that there was another set of reports taken by a stenographer whom Mr. D. A. Jones of Beeton, Ontario, employed, and promised to pay $100 for the same and that the reporter now held the reports, but would write them out as soon as the agreement was complied with. The stenographer feels that he has been deeply injured at the treatment he has received.

The committee of arrangements was instructed to retire and prepare a report and the president called upon the secretary to read an editorial from the pen of Mr. Thomas Newman relative to the Toronto convention, which he did. After discussing this matter for a while it was dropped.

Shortly after, the committee on resolutions having prepared a report suggested that the article of Mr. Frank Benton of Munich, Germany, on "Shipping queens by mail," be read. [As we have but little spare room in this number, we shall be compelled to defer its presentation until next month.]

This was followed by a general discussion of the subject. Mr. Peet thought that he had done all that could be done when he invented the "Peet cage," but he found that there was much to learn and he was pleased with Mr. Benton's essay and cage.

Mr. L. C. Root stated that he had shipped a great many queens and recognized the importance of this question. It is a well-established fact that queens can be shipped by mail. One of the great reasons why the candy put in the shipping cages crumbled was, that the water in the sugar was absorbed by the wood of which the cage was made. He thought that the matter of coating with wax that portion of the cage in which the candy is to be placed is important and valuable. I am heartily glad that this matter has been brought before the convention. Great credit is due Mr. Benton for his untiring efforts and great energy displayed in the attempt to solve this and other questions.

Mr. Silas M. Locke said Mr. Alley who has almost perfect success in shipping queens coats the hole in which the candy is to be placed, with wax and then sears the wax with a hot iron.

One gentleman stated that he sent for two queens. When they arrived, they were dead. He had sent to others with the same results and after this sent to Mr. A. I. Root for a queen and she died before he could introduce her, although it was attended to promptly after receiving her.

Mr. Frank Benedict stated that he purchased many queens, had received them after a journey of three days, and always found them all right and did not see how this gentleman lost his queens.

Mr. Arthur Todd stated that in 1872 he shipped some queens from Algeria to the north of France in the cage described by Mr. A. I. Root, and they died in transit, probably by reason of suffocation or want of air. He investigated and found that he could send a box about six inches square, and he then fastened the queen in the cage in one corner of such a box and this successfully. He wonders why this gentleman lost his queens. He had received many shipments of queens from the south and from Mr. Alley and they came all right. Just before he left home, he received a queen from Mr. Alley which was in fine condition.

He also received queens from Dr. Brown of Augusta, Ga., and wished that he had one of his cages to exhibit. As Mr. Brown puts up his queens very nicely, using about forty-five bees and both the queens and attendant bees arrive clean, active and all right. Several other parties took part in this discussion but their methods were similar to those mentioned.

Mr. A. G. Fisher of Livingstone, Ohio, asked the following question. "What is the best method of preventing first and second swarming? In answer Mr. Hall stated that he could retard them somewhat by giving the queen a very large brood nest, as per Mr. Doolittle's plan. If running for section honey, when the sections in the surplus arrangement on the top of hive are about one-half filled, raise them and place empty ones under them. S. T. Pettit asked if raising boxes when partially filled did not have a tendency to increase the deposit of "brood" in the surplus cells. Mr. Hall answered that in last season in securing 10,000 lbs. of honey only 20 lbs. were injured in that way.

Mr. Hall was then asked "what method he adopted to get the bees to work in the sections," and answered that,

when apple blossom honey came he did not care to secure any surplus from that source but when clover came he liked to have some partly filled sections to place in the hives. Bees were like ladies and as usual might be coaxed but not driven; hence he adopted the above mentioned method. Mr. Barber suggested tiering up, shading hive and giving plenty of air. Keep bees interested at home. Mr. Pettit asked Mr. Barber what he meant by plenty of ventilation, and received the following answer: "I raise my hive (a twenty-inch hive) one inch at the front."

Mr. Bacon said that he did not care to prevent first swarming as he did not find it profitable to keep too large stocks but more profitable to let them swarm once. He never succeeded in preventing bees from swarming entirely. In using foundations in the sections one will seldom be troubled by the queens occupying them. More trouble will come, however, from drawn than from worker foundations. He agreed with Mr. Hall as regards keeping partly filled sections for future use.

Mr. Clark expressed his belief that the natural tendency to swarm should not be interfered with and he did not approve of artificial swarming. The main question to be considered he held to be "to what extent swarming can be repressed without injury to the bees."

Mr. Thompson said that he had nearly solved this question by following the method of "top storing" and using wide frames on both sides of the hive thus providing plenty of room for the bees and raising the whole hive one-half of an inch from the stand. He commenced this season with 150 colonies of bees increased to 200 and secured 10,000 lbs. of honey; from 115 colonies in Simplicity hives containing seven frames, 12×12, he had but two swarms. He keeps his bees shaded well.

One member asked Mr. Locke if upward ventilation was used in preventing swarming and was answered as follows:

Mr. Norton of North Madison, who is quite successful in obtaining surplus honey uses the tiering-up system and leaves the tops of the frames in the upper surplus arrangement under the caps all open and uncovered, especially where the colonies are strong.

Mr. L. C. Root said "I am not an advocate of natural swarming and can hardly see how any person of large experience can advocate it. We must have a system of management to control this. One great stumbling block in the way of advancement in beekeeping is the fact that the natural laws must not be interfered with." We must have a successful method of preventing the desire to swarm and he believes that the time will come when we shall have such system. He had tried to control swarming by dividing but this was unsuccessful. One good method was to supply young queens just before the swarming fever commenced; this exerts a great influence over the bees. He recommends a large entrance, good broad roof and above all we should give them plenty of room.

After some more discussion the following resolution was adopted:

Resolved, That this convention can give no fixed rules for the entire prevention of swarming while producing comb honey. But the following methods tend to its prevention: plenty of room, air, shade, and introducing young queens at the beginning of the surplus honey harvest.

Mr. L. C. Root then made some very interesting and appropriate remarks regarding the convention of the North American Association held at Toronto last fall. He regretted very deeply that he was unable to be present but was pleased with the kind and gentlemanly spirit with which the matter of selection of the officers of the association was conducted, and he would have been pleased to have met the Rev. L. L. Langstroth there.

He had endeavored to give the notice of this convention held at Rochester, a thorough and complete circulation and make this one of the largest and best ever held. Had examined the old bee journals regarding the matter of noticing conventions and felt proud to say that no other person had been more faithful in this matter than W. F. Clark of Speedside, Ont., and was very glad to meet him here, as much so perhaps, as any person excepting, of course, our honored and favored Langstroth whom we would have loved to welcome here.

After this the meeting adjourned to meet at 7.30 P. M.

[*To be continued.*]

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FOUL BROOD.

BY J. E. POND, JR.

THE readers of the "Apiculturist" do not need any description of foul brood, neither do they need be told that it is more to be dreaded than all other diseases to which their bees are liable. All this they know full well; the matter of greatest interest to them is, as to whether an easy and speedy cure, and one that can be accomplished without loss of hives and comb has been discovered. If we can believe the truth of the statements of Mr. F. Cheshire of England, such a remedy has been found. For years total destruction by fire has been advised by our ablest apiarists as a matter of economy in handling colonies affected with foul brood. The great loss that this would occasion to the owners of large apiaries has led to investigation of a most thorough and searching nature both in regard to the cause and means of cure of the malady, which investigations have left the proper means to be used still somewhat in doubt. One advises the starvation plan, and insists that by no other means can a cure be accomplished. Another recommends the use of salicylic acid, both in the form of spray, and by feeding in combination with honey or syrup. Others still advise fumigation with salicylic acid, and others still with camphor and ammonia. Each of these advisers is strenuous in urging that their plan is the only safe and sure one to be used, but none of them have given us any scientific reasons in regard to the same. Mr. Muth of Cincinnati, Ohio, to be sure gives us his method of treatment with the acid, and claims to have performed many cures in his own apiary and in the apiaries of others, but the plan that he advises even though it may be absolutely safe and certain calls for so much labor and complication in its application, that many would be deterred from attempting it. Mr. Frank Cheshire of England gives us a method of cure, which is easy and simple in its application, and involves no loss whatever. Mr. Cheshire is well known as a scientist, and an enthusiastic beekeeper.

He has given much time to study in regard to the cause of foul brood, and experiments in curing it, and the result of his works has been generously donated to the public by him. In treating a diseased colony by his plan, all that is required is to feed a solution of the remedy to a diseased colony or colonies, and the disease is speedily rooted out, in fact, cured. The remedy he uses and advises is phenol. Phenol in the arts is a hydrocarbon produced in the distillation of coal tar, or from the vapor of benzoic acid. It is commonly known as pure carbolic acid. This known agency led to its use in the cure of foul brood, and if the experiments of Mr. Cheshire are credited, it has succeeded wonderfully.

There is no reason to doubt either the ability or truthfulness of Mr. Cheshire, or the faithfulness with which he has made his investigations. He himself says that he did not and would not make the result of his labors known, until he was fully satisfied that he could not only cure the trouble when isolated, but could so control it that no other colony would or could be affected by it while the work of cure was being carried on. As for myself, I know nothing personally of the matter, but if the means of cure claimed by Mr. C. proves to be all he claims for it, our beekeepers owe him at least a debt of gratitude, for giving them immunity from a terrible scourge. I trust the matter will be thoroughly investigated, and the results made known, for certainly nothing can be more a matter of interest and importance. A full history of the matter will be found in the British Bee Journal for Oct., 1884, and I advise our apiarists to obtain that journal and study it with care.

Foxboro, Nov. 14, 1884.

WINTERING BEES.

By L. C. Root.

I have been very much interested in the recent discussions upon this subject.

When such men as W. F. Clark, G. M. Doolittle, James Heddon, J. E. Pond and a host of others, have given this subject so much thought, good results must follow.

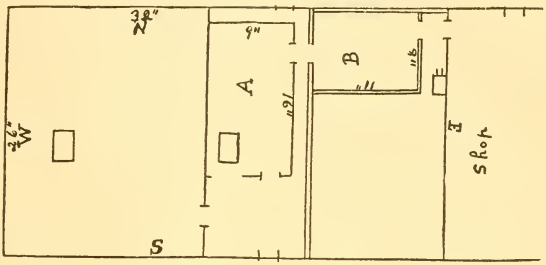
I have arranged to make some observations and to conduct a series of experiments during the coming winter and spring, the result of which I hope may be to throw some light upon this important branch of our industry. I shall not describe the manner of preparing bees for winter at this time, but shall only say that each stock should have a good supply of well ripened honey and a good quantity of pollen. This with a populous colony of bees is essential.

I think that one of the prime requisites for successful wintering is *pure air*, so supplied that the air in the room will be sweet and agreeable at all times.

I give below a diagram showing the location of each room where my bees are to winter, so that your

readers may form more accurate conclusions as to results. My building faces the west, and the black spots show the location of the chimneys.

The room marked *A* represents the cellar under a living room where a continuous fire is kept. A six inch pipe leads from the top of this room to the stove-pipe above.



The room is ceiled with matched boards and a space of 18 inches is left from the partition to the wall. The cellar bottom is all cemented; size of this room is 16 by 9 feet and 6½ feet high. The cellar windows on the north and south side are loosely packed with straw so that air is admitted freely.

Room *B* represents a room on the second floor over a kitchen where a fire will not be kept all of the time. This room is 11 by 8 and 8 feet high; it is ceiled, and a space of four inches in the inside walls and of eight inches next the outside is packed with sawdust, with sawdust overhead.

In the centre of the top is an opening 15 inches square for ventilation. This is arranged to be closed or partly so if desired. The pipe from the stove below enters the chimney in the small passage leading to this room.

I shall arrange my bees for the winter as follows.

In the room *A*, I shall place ten stocks in twelve-frame Quinby hives, seventeen stocks in eight-frame Langstroth hives and seven stocks in eight-frame Quinby hives.

In room *B*, I shall place nine stocks in twelve-frame Quinby hives, eleven in eight-frame Langstroth hives, six in eight-frame Quinby hives and one in an old-fashioned cone-shaped straw hive. I shall pack on the summer-stands two stocks in Quinby frames and two in hanging frames; also place one stock in my attic and one in a warm place where it can be fed with liquid food. I make this statement as the basis of a series of experiments. I shall give reports in each number of the "American Apiculturist" during the coming winter and spring. As will be seen in the articles to follow some of these stocks are composed of single colonies, others are doubled, one is composed of five colonies united. I shall weigh a number of

these stocks the first of each month giving the amount of honey consumed by each. During these experiments I shall be glad if your readers are enough interested to ask questions which may aid me in making the experiments of interest to all.

Mohawk, N. Y., Nov. 15, 1884.

POISON OF THE HYMENOPTEROUS INSECTS, AND SECRETORY ORGANS.[1]

By Arthur Todd.

It has been believed, until lately, that the secretory organs of the poison among hymenopterous insects formed a single glandular system opening into a vesicular reservoir whence the poison is forced into the wound produced by the sting. The researches just made by Monsieur G. Carlet enable us to affirm that the poison apparatus of the Hymenoptera is always made up of two distinct glandular systems, the one secreting a strong acid, and the other a feebly alkaline secretion.

The first of these systems has been known a long time and according to chemists produces formic acid; the second, on the contrary, secretes an alkaline liquid, and is made up of a large glandular tube terminated in a "cul-de-sac."

These two systems open out at the base of the sting, and the liquid which results from the mixture of their secretions, that is to say, the poison itself, is always acid.

According to the experiments made upon the poison of the xyloscope, Mr. P. Bert had been led to conclude that the poison is acid, owes its acidity to a fixed acid and appears to contain besides, an organic base. The result that Mr. Carlet makes known confirms the conclusion. Mr. Carlet undertook experiments upon the poison of different hymenopterous insects, bees, wasps, hornets, etc., etc., and after having many animals such as rabbits, toads, etc., innoculated, which he found but slightly sensible to its action, he experimented on the domestic fly and the meat fly which presented to the action of the poison an extreme sensitiveness.

The results obtained are as follows: (A) The stinging of a fly by any hymenopterous insect, such as a bee, brings immediate death the victim falling as if struck dead by lightning.

(B) The innoculation upon a fly of the product of any one of the two venomous glands of an hymenoptera does not involve the death of the fly or only leads to its death a long time after innoculation, even though the artificial innoculation has necessitated a more considerable mutilation than that which results from an actual sting.

(C) The successive innoculation upon the same fly of the product of the *acid gland* and of that of the *alkaline gland* leads to the

[1] Translation from the French "L'Union Pharmaceutique."

death of the subject in a very short time after the second innoculation, and it may safely be inferred that life ceases at the moment of the mixture of the two liquids in the body of the insect under treatment.

To sum up:

1. The poison of the hymenoptera is always acid.

2. It is composed of a mixture of two liquids, one strongly acid the other feebly alkaline, and acts only when both liquids are present.

3. These are produced by two special glands that may be called the acid gland, and the alkaline gland.

4. These two glands both expel their contents at the base of the throat from which the sting darts out.

Germantown, Philadelphia.

A GUIDE TO THE BEST METHODS OF BEEKEEPING.

By J. L. Christ.

(Continued from p. 226, Vol. II.)

ON THE ATTRIBUTES OF THE BEES AND THEIR NATURAL SPEECH AMONG THEMSELVES.

Let us now dwell briefly upon another quality of the bees. The order displayed in all their occupations and movements is grand, admirable and interesting; and this desire to observe and obey it, with which the Creator has endowed them, reminds us that their Creator and ours is a God of order. But how could it be otherwise in the wise plan of creation? What can stand where there is no order and where no harmony exists?

In regard to their two valuable products, wax and honey, they manifest an extraordinary economy. Taught by Him who is absolute wisdom, the artistic foundation and construction of the cells, as well as the economy shown in space and room and in the selection and preparation of material, is such that the greatest geometer and the wisest scholar could not devise the same with greater accuracy, economy and adaptability; the wax they will use very judiciously and without waste, and will use resin where the use of wax would be superfluous. With the greatest amount of honey in store, they will not consume more than is strictly necessary. By their system of economy and by an irrevocable law of legislation, they will, in winter, in spite of the greatest abundance of honey, mercilessly expel all males which are a burden to the commonwealth and will show no mercy even to the young which they have so tenderly cared for.

Their love and fidelity towards their queen and mother involve their wise plan of preservation, as well as their harmony and perfect understanding among themselves and their mutual assistance and defence.

Besides this ready assistance for the common good and for each other, we may see them always prepared to brush the hairs one of another, for the purpose of taking

off the dust or other impurities; they give each other honey with their tongues, will defend each other with the utmost courage and are in this respect all for one and one for all. Their love for cleanliness in their dwellings has not its equal.

Regarding their natural language (if I may so express myself), thousands of observations prove and their auditory sense shows that they have simple signals by which they communicate to each other their wants and little passions. It is only remotely analogous to our language as we are enabled to make known our ideas and sentiments to others by artificial signs or words. These simply natural signs of course differ as widely from our artificially composed words as the animal passion differs from our reasoning, as we are reasoning, intelligent beings capable of self-inspection and of ascending to our divine Creator.

Moreover, if a bee meets for the first time with a cup of honey, or makes other similar discoveries, we see the manifestation of joy and satisfaction through the vibration of the wings and by a certain monotonous tone: by this means numerous others soon arrive and before long a cloud of bees will be gathered to the common work.

We notice further the irritated noise with which they will fly about the ear of an observer by whom they believe themselves offended. They will call their fellows, and we notice how by this note of alarm, the delicate nerves of the brain are acted upon and they become inflamed with the mutual desire for revenge and how by it they recognize the cause and are awakened to action.

THE LENGTH OF LIFE OF THE BEES.

With respect to the longevity of the bee, the workers will not live over one year,[1] for all insects provided with light veil wings and those which multiply rapidly generally live but a short time. It is however well known that the queen may live several years, because in her domestic life, she is not subject to such hard labor as the worker bees. Her nature is also more hardy and enduring than that of her children, and for that reason she has shown more endurance when subjected to various treatments and experiments. The necessity of this is quite apparent when we consider that the life and prosperity of the colony depend upon the mother bee.

But the worker-bee which is young this summer is old the following season and will, as a rule, die before the end of August; rarely will she survive until September. We notice in June and July that the body of the old bee begins to shrink and grow smaller. The hair becomes gray and the bee generally has no longer the size or appearance or the brilliant lustre common to the young bee. The wings

[1] It is now well understood that the average life of the workers during the summer season is about six to eight weeks, depending upon their activity and the amount of labor performed; while those hatched late in the season live over until spring, but are replaced by young bees before the working season.

through continuous labor grow gray and are torn and ragged at the ends. Not long thereafter some of them will die at home, others in the fields while collecting stores, as their wings are so worn, they will no longer support their bodies, especially when laden with honey. On account of their short life they multiply rapidly and never will become depopulated unless weakened through repeated swarming, or if on account of a honey dearth the queen considers it advisable to start but a small amount of brood or none at all, or the queen is lost, or if their eggs are lost and there is no young brood at hand. This however will happen but seldom with a good populous colony, or in one that keeps up the temperature in the brood nest that it permits the mother bee to care for her brood.

THE INTERMENT OF THE DEAD.

The bees generally select a rainy day when they cannot gather honey for the burial of the dead old bees as well as the interment of the young brood accidentally lost. On this occasion two or three bees will carry a dead body outside, when another bee will lay hold of the corpse with its fore legs and fly away with it. If the load prove too heavy, two bees will carry the corpse, the one taking hold at the head, the other by the hind extremities and will fly away together and let their load drop at quite a distance from the hive.

However, with the first appearance of sunshine again, work of this character is abandoned and they start for the more necessary work in the fields, leaving the other for the next opportunity; but when absolutely necessary they will carry out of the hive during the night everything that is hurtful and injurious.

A very excellent and valuable attribute of the bees is that they become easily acclimated and live and thrive well either in an extremely hot or in a very cold climate, being able to take advantage of both. Such is not the case regarding other insects. In this respect they have, in some degree at least, the nature of an European, inhabiting a temperate climate and who will do well again in a very hot or very cold latitude. That is what cannot be said of an African, a Moor or a Greenlander.

[*To be continued.*]

EDITORIAL.

Once again, in the history of our Journal, we are turning over the closing pages of another year. How solemn and impressive are the thoughts that crowd through our minds, one after another, as we look back over the past and review our thoughts and acts, only to find them indelibly recorded, to be studied and criticised by coming generations when we perchance shall be lying in the bosom of mother earth, in peaceful forgetfulness of the busy toil of the world!

How much better is it, when our work is completed and we are resting from our labors, that we can

leave behind us in the hearts of our brother beekeepers such records as mark the history of men like Huber, Quinby, Wagner and a host of like noble, self-sacrificing spirits!

As we consider these matters and realize the position we have taken, the questions come to us, Have we done all that lies in our power to elevate the cause which we represent, and to benefit and protect our brother beekeeper in whose interest our journal is published? or, have we sacrificed and slaughtered his interests to our own personal ends, in total defiance of justice and right?

It matters much how we are able to answer these questions, for it would be far preferable to us to be laid in an humble resting-place and by stranger hands and know that there were those living whose burdens and cares we had lightened and those to whose homes we had brought a few more of the comforts of life, than to count the thousands which we were to leave for others, and possess a soul so small and devoid of every generous sentiment, that it could not grasp more than the thought that we alone must be cared for, even though thousands of our poorer brethren were robbed and swindled to fill our coffers.

It is now nearly two years since we first came before you as an editor and presented for your consideration the initial number of the American Apiculturist. Our object in so doing was to establish a journal which should be entirely free from any connection with the supply business, either directly or indirectly, and one which was published wholly in the interests of scientific and practical apiculture. Nor was this purpose born of our efforts, as that pioneer of American bee-journalism — Samuel Wagner — in giving to us the "American Bee Journal" of which he was the founder, based it on that same broad platform (where it should be to-day), and others have endeavored to accomplish the same object, but have failed through lack of support.

Now, the great question with us has been, Have we fulfilled our promises faithfully and well and given to the beekeepers of America a journal worthy of their support? If we have, then it is the duty of every beekeeper who cares for his interest and the cause of apiculture to stand by us, and exert himself to the utmost to sustain us in our enterprise, even though it cost him a little self-sacrifice.

As we view the many and varied experiences through which we have been called to pass, as editor of the Apiculturist, we can but wonder that despite the most formidable opposition and under the most trying circumstances (of which but a few will ever know), our efforts have been crowned with such abundant success; and while we feel deeply thankful for this, yet we are aware that it is not due so much to our efforts as to the kind, protecting care of a loving Creator who invariably favors the cause of justice and right. At the same time, we do not forget the noble, manly and persistent efforts of those who,

with so much self-sacrifice, have rallied about us in the work of reform. And when a score or more of our most prominent and responsible apiarists, wishing to show their appreciation of the course we had taken, agreed to stand by the APICULTURIST, and see that it *did live*, our cup of gratitude was filled to overflowing, as it relieved us of a heavy burden of care and anxiety.

In vain has it been said of those who have so cheerfully aided us (America's best and most trustworthy apiarists) that they rendered us this support through mercenary and selfish motives; and we take great pleasure and pride in stating that not one of them has ever expressed a desire, either in word or act, to use or control the APICULTURIST for any such purpose, and that from its commencement until to-day it has been published on the broad principle of equal rights and the greatest good to the largest number.

Notwithstanding the many barriers which have been erected to stay its progress and the means that have been adopted to injure its usefulness, the APICULTURIST still lives, and will continue so to do until its mission is accomplished.

It matters not that some journals refused to publish the reports of the North Eastern Beekeepers' Association because its members endorsed the APICULTURIST, and recommended it to the beekeepers', or that the North American convention adopted the same course that whatever was said regarding our journal was carefully excluded from one of the leading journals; and even the resolution passed by that body endorsing the APICULTURIST was "doctored" before it was given to the public.

Nay! justice and right have prevailed and the acts of these conventions, together with the hundreds of letters from prominent apiarists in every quarter of the globe endorsing our Journal, and the steadily increasing subscription list are abundant proof that we did not err when we said that the APICULTURIST had come to stay.

The time has now come for earnest, active work, and when we consider the grand possibilities of the future and believe that you our readers and subscribers are not only intending to send in your subscriptions promptly, but also to urge your neighbors to join you in forming a club by which you may secure a prize, thus helping us on in the work, we take inspiration from the thought and are filled with renewed vigor and courage.

On account of the many cares incident to our work, and owing largely to the fact that several different parties have addressed our wrappers, there have been a few mistakes which will not appear next year as we shall have our subscription list printed instead of written. We only ask that you will bear with us patiently, and we will correct all mistakes promptly when notified. Those whose subscriptions expire this month will find a blank enclosed in their jour-

nals which they will kindly fill out promptly and return to us so that we may not be delayed in making out our list for 1885. Should there be any mistakes, please inform us promptly.

Now, it will not be a hard task for most of you to send at least one new name with your own. Just try and see what you can do. Examine our club-list carefully. Those who wish to place their card in our dealers' list for 1885 *must* reply this month. Let us hear promptly from each one of you, as it is by your support and your subscriptions that the APICULTURIST lives.

CORRESPONDENCE.

THIS department belongs to the beekeepers wholly and we in no way hold ourselves responsible for any communications that may appear here.

All that we ask is that our correspondents be frank, manly and just in all their statements and criticisms keeping in view the best interests of the largest number and remembering that the plain, unvarnished truth, spoken in a gentlemanly way, will always cut its way through error and needs not to be forced with unkindly statements. We require that all communications have the signature and address of the writer attached, not necessarily for publication but for our own protection.

Toungoo, Burmah, Sept. 27, 1884.

MY DEAR SIR:

There lie before me two beautifully printed copies of the "American Apiculturist" which I have read with much interest. I presume I have you to thank for these specimen copies. I confess to a growing interest in this most fascinating study. I do not know that there is one hive of bees kept in this great province of Burmah, except it be that some native has found a bee tree and marked it as his, when the time for taking the honey comes. Yet there are thousands of acres of wild flowers; immense trees covered with a bloom so rich, as to send out its odors for distances about it; giant creepers climbing from tree to tree full of tasselled bloom, and booming with bees. One can hardly go a mile in an old forest, without seeing bees flying in and out of some tree, busy storing up the sweets so bountifully supplied them by a kind Creator.

Even missionaries may fall into the worse kind of ruts, and the routine of mission life among a barbarous people sometimes is almost unbearable.

As a break one finds the study of the fauna and flora of the country a pleasing diversion. I rejoice that my attention has been turned to a study of the bees of the country, and I hope in the future to reduce my study to practice as I can get time from my many duties.

The bee of this country is smaller than that of America. It builds about six cells to the inch; is very active and gentle. As a rule large swarms of the *Apis Indica* are not found, but doubtless they could under favorable circumstances be built up to any size.

There are many varieties of bees here. The *Apis dorsata* is a magnificent bee and builds an immense sheet of comb, sometimes several feet across under the limbs of very high trees. I have seen as many as thirty or forty of these sheets of comb on a single tree. I suspect that this bee has no more than

four cells to the inch, though I have never yet measured them. They are often gay colored; and perhaps (?) a cross between this bee and the *Apis mellifica*, if one can be obtained, may be the bee of the future. The *Apis dorsata*, however, so far as I know, never builds its nests *in* trees or hollows of any kind. There is also a tiny bee called *Apis florea* which is a perfect beauty. It builds its nest on the slender ends of bamboo or other trees, where it cannot be reached by its many foes and the honey is most delicious. I thus very briefly indicate the field for study in apiculture there is in this far-off land.

Thanks for the specimen copies of your Journal. With kindest wishes for its prosperity,

A. Bunker.

The Bghai Karen Mission.

To Editor Am. Apiculturist.

The busy season for beekeepers is now upon us. Swarming commenced in some of the more favored localities, nearly three weeks ago. The prospects of the season are good, notwithstanding that the weather has been colder, with more rain than was desirable for bees.

In many districts foul brood has made its appearance. This dread disease taxes the skill of the expert, but to the amateur it is simply an extinguisher. I notice in the British Bee Journal for August 1, that a Mr. Cheshire has made some important discoveries regarding the nature and cure of this scourge. If confirmed, the discovery will be of incalculable benefit to beekeepers, and Mr. Cheshire will be held in high esteem for his painstaking and disinterested inquiries on this subject. *Bacillus alvei* is to supplant foul brood and phenol takes the place of salicylic acid. I sincerely hope that the new cure will be effectual as I know several localities where the effects of *Bacillus alvei* are very serious.

Mr. Hopkins of the Matamata Apiary received from Italy recently a shipment of Italian queens. Out of twelve shipped in Italy only six arrived alive. I have not ascertained the length of time they were on the journey, but a previous shipment from the same quarter occupied thirty-eight days. I understand that some of our most enterprising apiarists have shipments on the way from America from the apiaries of some of your leading beekeepers. The distance is great, but should the venture be moderately successful, it will lead to further business. In my next I shall be able to give you the result of the venture, as I understand the bees are expected by the incoming mail from San Francisco. It is only of late years that the Italian bees have been introduced into New Zealand. We have no native honey bee. The common black bee was introduced by immigrants some thirty years ago. It has become thoroughly acclimatized and can now be found from one end of the colony to the other. It thrives well. Indeed most animals suited to this climate do. It is only a few years since sparrows were first introduced at considerable cost; now they have become a pest and all sorts of schemes are being resorted to, in order to destroy them. The same may be said of rabbits, which have in many places overrun the sheep farms, causing a loss that I believe one or two millions sterling would not cover. It is necessary to be cautious about what is introduced to a new country, but I do not fear for the results of introducing some of the best strains of Italian bees. Any which I have yet seen far surpass the blacks.

N. Z. Correspondent.

Oct. 9, 1884.

DEAR SIR:

I have just finished reading your editorial in the "Api" of Nov. 11, and feel that I am called to offer you my congratulations, for your open and manly handling of the question, whether "beekeepers or monopolists are first." Ever since the advent of your journal in the field as a "representative bee journal, I have felt that its "calling and election" were sure, for its primal object has been the diffusion of knowledge, experiment and truth, without being garbled and doctored by the prejudice of an unfair and greedy monopoly editor; and while your undertaking has been one of great labor, and has demanded patience, time and perseverance, as necessary to success, you must ultimately be rewarded, if there is any progress or intelligence among beekeepers. And when the time *does* come, that the "Apiculturist" shall be recognized as the *leading* Journal of America, I hope you will then be amply rewarded for the work you have undertaken and so manfully carried out. I have been a reader of the leading bee journals for a number of years and have long felt that they were not published so much for their readers' benefit, as for the purpose of advertising and selling the wares of their editors; and whenever a criticism was sent to their journals, if it was permitted to be published at all, it was twisted, garbled, and commented upon until all the life was out of it. As an instance, I point to W. J. Hutchinson's articles in "Gleanings" a few months back, where he shows that this booming, puffing and exaggerated style of bee literature as indulged in by the editor of "Gleanings" is calculated to mislead the novice, and prompts the beginner to invest in bees and fixtures to his ultimate loss and discouragement. And this model editor of the aforesaid "Gleanings" how he does twist and squirm, and dodge around! And finally takes his correspondent to task, for what? Well, for telling the truth; and all for the reason that such articles are calculated to do the supply trade harm. Besides this very serious and hurtful characteristic, the monopoly journals are filled with matter from the pens of the novice and beginner, with a booming report, and generally winding up with a recipe for curing corns or felons, and the average beekeeper has been paying for and swallowing these literary nostrums until he naturally revolts and calls for a more healthful tonic. And right here, I promise you Mr. Editor, that hereafter I eschew the sloppy and trashy bee papers, and will give my money and influence to the "Apiculturist" with the hope and desire that it may have prosperity and speedy success, and to all *beekeepers* I would say, look carefully to your own interests, and remember that to attain the prices and secure the best market that will make our business remunerative, we must have concerted action, must act more as an organized body considering that our interests are the same, and that coöperation will bring the best and most speedy results.

"BEEKEEPER."

Ohio, Nov. 16, 1884.

OUR CANADIAN DEPARTMENT.

R. F. HOLTERMAN, *Editor.*

FOR sometime we have contemplated opening in our journal a department under the above named heading, and at last we have been very fortunate in securing as its editor Mr. R. F. Holterman of Fishersville, Ont.

It is known to most of our Cana-

dian friends that Mr. Holterman is a graduate of the Guelph Agricultural College and has been a pupil of Mr. D. A. Jones for three years. This, with his natural fitness for the position, will be a sufficient guarantee that he will serve thoroughly and well the interests of his Canadian brethren.

We have had an extended personal acquaintance with Mr. Holterman and take pleasure in stating that he will add dignity and character to Canadian apiculture as editor of this department. All matter intended for these columns should be addressed to Mr. Holterman excepting general articles which should be sent to us.

Fishersville, Ont.

Since our last report Aug. 9, there has been little honey gathered with rare exceptions, in fact not sufficient for temporary demands. Golden rod, boneset and other fall flowers yielded well for a few days, but a cold spell stopped the secretion of honey and the bees had to make use of stores, in fact the consumption has been unusual owing to weather. However the yield has been better than expected. The eastern part of Ontario has not done well, the yield not being one-half of a crop. The reports are brighter as we come west and the southwestern part reports a fair crop. About the best is from St. Mary's from a lady: forty colonies of spring count, increased to eighty, with a yield of 8,500 lbs. of surplus honey.

Bees to do well here require to be very strong. When clover came in, the honey came early and with a rush. Prices have been very variable; beekeeping has made tremendous strides. I was in Beeton when Mr. Jones shipped 200 honey extractors in two days; and when the early flow came beginners and nervous beekeepers rushed their honey on the market and flooded it in fact for a time; they sold extracted at 8 cts. wholesale and 10 cts. to storekeepers in exchange for goods. Comb-honey was peddled at 15 cts. retail for nice sections for about two weeks. Then beekeepers commenced to realize that it would be worth more if held. In fact, those who understood their business never sold for that sum, and prices gradually went up; and to-day there is nowhere near as much honey in the hands of the producers as there was at this time last year.

While honey can still be bought at 10 cents in large quantities, 100 lb. lots have been selling at 11½ to 12½ cents per pound and some appear to expect more before spring. Butter is high. To-day 10 lbs. of honey are consumed at the table where one was four years ago, and although with the present outlook as to increase in the number of beekeepers, the prospects almost appear to look toward overstocking. We can produce a first-class article and if beekeepers open up a foreign market properly and encourage home consumption, there is still room, and beekeeping should be profitable. There is a good opening for a *thoroughly reliable* man who must also understand the business of grading honey to push foreign and home sales of honey. We, however, want *no glucose* or *corn syrup* in our honey to keep it from granulating.

Mr. W. J. Rasin's honey of a deep red color from description and time of storing seems to me to have red raspberry juice.

Of 210 colonies in our apiary but few, if any, were free from such red cells. At that time there was a patch (probably 30 acres) of berries in my immediate neighborhood and where these red cells appeared, I noticed the bees at work on the very ripe berries. The bees that I managed were Italians, Holylands

and their crosses, together with a few black crosses. I noticed no difference. I could only account for Mr. Rasin's Italians not storing the red honey in one of the following ways: they were robbing other colonies which the hybrids could not do, or the Italians were able to reach the nectar in flowers where the others could not. I trust that this may throw some light on the matter.

We have heard so much about not being able to sell good queens for one dollar and the slipshod way of rearing them, perhaps it would be of benefit to hear a little about the same method when practised by those charging high prices for their queens.

In preference to having a poor queen for $5.00 I would have the same at $1.00. Whom shall we trust or shall we trust no one and rear our own queens?

There are men in the dollar queen business whom I would trust and who have as good a character as those selling high-priced queens. I think that more care should be given to developing better and more practical methods of rearing queens. The season has a great influence in this matter and I think that with 100 colonies of first-class bees to select from and a thorough knowledge of queen-rearing, one should be able to rear good queens cheaply during the swarming season.

NOTES AND QUERIES.

—Will Mr. John Elmford please send us his address.

— Our friend Tefft kindly sends us the following note.

From B. W. A., Pittsburgh. — In answer to an inquiry recently published in the *The Metal Worker*, I inclose a recipe for a paste that will adhere to tin, which has recentiy been published in another journal in answer to a similar inquiry. The recipe, which has been taken from Lillard's "Practical Hints and Formulas," is as follows:

Tragacanth mucilage	5 drams.
Honey	5 "
Flour	1 "

Mix.

The addition of honey to any good paste is said to make it adhere well to tin.

— Those who find the word *expired* on the wrappers of their journals will kindly send in their renewals as promptly as possible so as to avoid delay.

Also please write your addresses very plainly, as next year we shall have them printed so as to prevent any misdirection. If we make any mistakes and the parties will notify us promptly we will rectify them at once. If you or your neighbors want to take advantage of our offer for bound vols. 1 & 2, please reply *at once*. Many have already, but we want 1000 calls for it *at once*. We trust that you will not only renew promptly but induce your neighbor to also.

— This time the cry against adulterated honey comes from our "British cousins," who are now forming a "British Honey Company" for the purpose of educating the public to appreciate *pure* British honey, as well as to bring the producer and consumer together and establish better relations between them.

The enterprise is a laudable one, and *our* beekeepers' associations should take notice of this advance on the side of reform. Those who will read the editorial notes in the "British Bee Journal for Oct. 15 will recognize the result of cutting up our comb honey placing it in jars and "saturating the contents with corn syrup," according to the formula suggested by Messrs. Thurber & Co.; and every attempt to shield this practice of adulteration is an injury to the honey mar-

ket. Rather let the beekeepers of America wash the robes of apiculture from the stigma cast upon her reputation by the conduct of those who adulterate. Let us say to the world ever and always that the beekeepers of America denounce every form of adulteration and mean wherever possible to ferret it out and expose it.

— We have many inducements to offer those who wish to work for the "Apiculturist." Just drop us a card asking for them.

— If any of the dealers who advertise with us wish to take advantage of bottom prices for advertising by the year, for 1885, they will please write to us for terms *at once*. Remember we shall send out from 2000 to 3000 copies per month in 1885. Also if you are having price lists printed we should be pleased to exchange advertisements with you. We mean, if possible, to give the beekeepers the best advertising for the money expended, that they can procure.

— While at Mr. Alley's sometime since, we tested one of the most simple and ingenious beesmokers that we ever saw, the "Visitor Smoker" from Mr. Clark of Moniteau, Monitean Co., Mo.

It can be carried in the mouth and burns punk or rotten wood and after testing it thoroughly our advice to everyone of our readers is, send to Mr. Clark and secure one to try for yourself. Mr. Alley put up, for shipping, sixty queens, using this smoker without refilling it. We would suggest that the smoke tube which directs the smoke upon the bees or into the hive be longer and smaller as it takes rather too much wind to run it.

— The present number of our Journal is so crowded that we are unable to give Mr. Cheshire's article on foul brood but will see to it later on.

— We are now preparing to give our readers a rich treat in the January number in the shape of a valuable paper from the pen of one of our most prominent and scholarly apiarists, upon "Moses Quinby and his life-work," to be accompanied by a fine likeness of that honored father of practical apiculture in America.

CONVENTION NOTES.

MICHIGAN STATE BEEKEEPERS' ASSOCIATION.

The annual meeting of this association will occur at Lansing, in the Senate chamber of the State Capitol, Dec. 10 and 11, 1884, first session 10 A. M., Dec. 10.

This being the home of Prof. A. J. Cook, and the location of the State Agricultural College, it is expected this will be the most interesting meeting ever held by this society.

A programme is being prepared, including several very important and interesting papers from Professor Cook, T. J. Burrill, Dr. Beal, R. L. Hewett, and several prominent apiarists from other states. A large delegation is expected from Canada.

The question box will be one of the important features. Come prepared to ask and answer questions.

Reduced rates on all Michigan railroads, and at hotels in Lansing. The President and Secretary will be at the Hudson House.

Notify me as soon as possible how many railroad certificates you will want and over what road you will go, so I shall have time to procure them. A cordial invitation is extended to all. Please come and bring your beekeeping friends with you.

H. D. CUTTING,
Secretary.

Clinton, Mich., Nov. 10, 1884.

NORTHEASTERN BEEKEEPERS' ASSOCIATION.

The sixteenth annual convention of the *Northeastern Beekeepers' Association* will be held in the City Hall, at Syracuse, N. Y., Jan. 21–23, 1885.

The executive committee are determined to maintain the high standing and enviable reputation the association has justly gained in the past, and propose to outdo all former efforts at the coming convention. The meeting will surely be the largest and most interesting ever held in America. No beekeeper can afford to stay at home. All are invited.

All implements for the apiary, sent to the secretary, will be properly arranged to compare favorably with others on exhibition, and will be disposed of or returned as the owner directs.

Reduced rates of board at hotels.

L. C. ROOT, *Pres.*

GEO. W. HOUSE, *Sec'y.*

NEW ENGLAND BEEKEEPERS' ASSOCIATION.

A NUMBER of prominent beekeepers of New England, being desirous of forming an association for the promotion and protection of the interests of apiculture, and feeling that the time has now arrived when such an association should be formed, have thought it advisable to call a convention for this purpose; and, in order that the arrangements may be completed, will every beekeeper who feels an interest in this matter send his address at once to J. E. Pond, jr., Foxboro, Norfolk Co., Mass.?

It may not be generally known that we have a North American association of beekeepers, but such is the case; and, therefore, it would seem advisable to make all local organizations representative in character and subsidiary to the national body. The present promoters of this enterprise, however, have no desire to make any move save such as will meet the views and wishes of the majority, and for that reason desire that every beekeeper who is at all interested in the matter will at once respond to this call which is intended to be preliminary to calling a meeting for the purpose of organizing.

This is an important matter and one that demands immediate attention. Shall the beekeepers of New England let it be said of them that they have no voice or representation in the next convention of the North American Association? No! they will not; and it is to be hoped that immediate answer will be made to this call.

[We take pride in endorsing the above and would urge every beekeeper who has the least interest in apiculture to respond *at once*. If you want to protect your own interests you must do it through associations; and now by joining hands and working together we can build up an association in New England of which we may be proud, and be ready next fall to send a rousing good delegation to Detroit, Mich., to represent our interests.

All who know Mr. Pond can but feel that whatever he does will be done for the greatest good of the largest number. Please reply promptly and make this undertaking a grand success. ED.]

NORTH AMERICAN BEEKEEPERS' CONVENTION.

(*Continued from p. 264, Vol. II.*)

TUESDAY, OCT. 28.

MEETING called to order at 7.30 P. M. Vice Pres. L. C. Root in the chair. The following question of Mr. A. J. Fisher was again opened for consideration, viz.: When we as beekeepers cry down adulteration, are we working to our interest when we use full sheets of foundation in our surplus boxes? Especially if we use seven or eight feet to the pound are not we ourselves ruining our markets?

Mr. Hall of Ontario used foundation 7 or 8 feet to the pound with good results, never being troubled with fishbone "so called." He had tried foundation 10 and 12 feet to the pound but it was difficult to keep it straight and it was pressed so hard that the bees would not draw it out. He had used foundation 4 feet to the pound and found that the bees thinned it out so that his customers never objected to it in the least.

Mr. S. T. Pettit of Ontario had heard nothing of "fishbone" in comb honey excepting at conventions. He thought that we were creating a needless prejudice and he did not favor it.

Mr. W. E. Clark of Oriskany concurred with Mr. Pettit. Mr. Peet and Mr. Locke both referred to instances where the foundation was not thinned out properly and was an objection on account of leaving a thick base.

Mr. Vandervort of Pennsylvania was of the opinion that when thin foundation was used no one could observe any objectionable base, and indeed it was hard to distinguish it from that having a natural base. He and four of his neighbors shipped a car-load of comb honey to New York only one lot of which was natural comb and this lot was the least salable of them all.

Mr. C. C. Van Deusen had tested foundation of various thicknesses and while some of the thicker samples were characterized by "fishbone" the thinner ones were free from it.

Mr. L. C. Root thought that much of the objection to comb foundation came from the fact that it was considered a novelty. We certainly get more attractive and marketable honey by the use of comb foundation, and it was in no sense an adulteration since both natural comb and comb foundation were made of beeswax.

It was moved "that it is the sense of this convention that it is detrimental to our honey trade to use, in section boxes, comb foundation less than 10 feet to the pound.

Mr. Hall of Ontario could not endorse the resolution, as his experience was against it. He used none lighter than 8 feet to the pound and his comb honey was so nice that Dr. C. C. Miller thought it must have been produced by the use of the separators. He wants his foundation about 7 feet per pound, thin base and thick side walls for surplus, and for brood nest 4 feet per pound with very little impression. Mr. Locke had seen Mr. Hall's honey for several seasons and could pronounce it first class.

Mr. Ira Barber has furnished honey by the ton for Boston; has used full sheets of foundation, 8 feet to the pound and never had any complaint on account of "fishbone" excepting that which came through journals and conventions. Mr. Jones of Mt. Morris, N.Y., attaches to the bottom of the sections a strip of comb foundation $\frac{1}{2}$ inch wide within $\frac{1}{4}$ of an inch of the sides of the sections and cuts the top piece so that when attached it reaches to within $\frac{1}{8}$ of an inch of the lower strip foundation 9 feet to the pound. The bees will fill the section complete to sides and ends. Mr. Benedict endorsed what he said.

The resolution was carried with only two opposing votes; a large number, however, did not vote.

Mr. W. E. Clark of Oriskany made a motion seconded by S. S. Pettit "That a committee of five be appointed by the chair to consider what could be done to bring about a more thorough organization of the North American Beekeepers' Association."

Mr. W. F. Clarke of Ontario spoke at some length on this resolution claiming the indulgence of the convention as he was the only member present who was present at the organization of the society. He stated that the first intention was to make it "national" but at his request it was carried "North American" so as to include Canada, so that it is properly called "international" and he hoped that it would continue so.

At its commencement there was a ring or clique among beekeepers which the organization was the means of breaking up and he boldly affirmed that there had never been a ring or clique managing the society. There were those who wished to break up or divide this association but he hoped that this would not be done. He had no doubt that the society might be modified to advantage and improved in various ways but he would not like to see it broken up.

Other members of the convention spoke upon this subject concurring with the opinion that the association should continue to represent the interest of the beekeepers of the United States and Canadas.

The resolution was unanimously passed and the chair appointed the following committee: Ira Barber, Wm. F. Clarke, W. E. Clark, Arthur Todd and J. Van Deusen.

The meeting then adjourned for a social chat.[1]

FIFTH SESSION.

Convention called to order at 7.30 P. M., Oct. 29, Mr. L. C. Root in the chair. A discussion on "Comb Foundation" was first in order, and was opened by a brief paper read by J. Van Deusen as follows:

The importance of comb foundation is evident to the great majority of beekeepers. Its early stages of experiment have passed. The apiarist of to-day can justly boast of the best comb foundation in the world. Time

[1] We have omitted the report of the third and fourth sessions to give place for other matter.

was when the highest ambition of the apiarist was to obtain a *starter*—a comb-guide; but with the improvement in foundation, the guide is a thing of the past. The necessities of to-day are full sheets of worker foundation to build up colonies by which we are enabled, in a great measure, to control the number of drones in the hive, which has always been a serious drawback in the production of honey.

The beekeeper of to-day can hive his colony on full sheets of comb foundation, and in less than twenty-four hours, under favorable circumstances, can see the queen supplied with cells in which to deposit brood as fast as she can use them, and the workers storing honey. They can also fill their sections with foundation, and under favorable circumstances, have them nicely filled and sealed over in four, six or eight days. With these facilities, it is left with individual beekeepers to decide whether they will use a clean, light foundation which will make a surplus honey to please the most fastidious taste, and build up a reputation for nice honey such as no other nation can produce; or whether they will use a dirty, heavy foundation and make such a honey as no one ever wants the second time. Choose ye between the two.

Make a nice surplus honey and establish a reputation which will command a ready sale at a good price. You have the facilities for making either. It is for you to decide whether you will use an inferior foundation and ruin your reputation for nice honey or a superior foundation and establish a reputation such as no other nation can compete with.

Quite a discussion followed the paper, but it was a repetition of what you will find in the reports of the proceedings of the N. E. B. A. in our March number for 1884.

The question, Is it advisable to reverse the brood frames? was next considered by the convention.

Mr. Van Deusen stated that his son has had several reversible frames for five or six years, and I think that if there had been any advantage in this method it would have been adopted long ago.

Mr. Hall saw no good in reversing. Nearly every one of his combs is nicely attached to the bottom and top, and if the bees are troubled about attaching them he placed them in supers above the brood-chamber. Cells are invariably built on an incline.

Mr. Ira Barber agreed with Mr. Hall.

Mr. Betsinger disagreed with them and stated that he had over one thousand reversible frames in his apiary, would not be without them, and that they were the coming frame. We must have our brood-chambers full of brood in order to get our honey. An ounce of honey left in the brood-chamber robs the surplus of two ounces. Only brood should occupy the brood-chamber. When the honey-harvest is coming on, reverse the combs and the honey will be carried into the sections. My object is to so reverse the combs as to have them occupied with brood before the honey-harvest comes on, when the bees will carry the honey all up, but if you reverse them late the honey will all be carried down.

Mr. Pettit. When my combs are cemented fast to the top and bottom-bars, the frost cracks them and the bees gnaw and waste the combs in the spring.

Mr. L. C. Root. We must be careful what impressions we send out as a convention. I think that reversing the combs for having the honey carried into surplus arrangements, or to have the combs built solid, can result in no detriment, though I am not sure that any great advantage would come from it.

Mr. Betsinger. I think that I have given you all that is practical. I am experimenting and have not the mode of reversing the frames perfected yet, but hope that our friends will experiment on this point. I would never advise reversing a comb that was not built on foundation, or at least any comb which would bring more or less drone-comb top, as it would give us a lot of useless drone-brood.

The question was then dropped and the committee on the revision of the constitution was called upon and reported as follows:

The committee on revision of the constitution, on consultation with Mr. N. N. Betsinger who was present at the meeting held at Philadelphia in 1876, find that the "North American Beekeepers' Association" should be composed of delegates from all of the local societies throughout North America. They would therefore recommend and urge that the local societies do carry out this feature and send delegates to the meeting of this society at Detroit in 1885. The local societies will please correspond with the executive committee regarding this matter.

The report was received by the convention and discussion followed.

Mr. N. N. Betsinger stated that the organization of the association at its commencement was like that of all new associations It died at Toledo, Ohio, and was reorganized at Philadelphia as a representative body, and then went to New York where there were a number of delegates ready to be represented, but the officers did not carry it out.

Mr. W. E. Clark believed that this should be a representative association or an association of delegates, and further believed that this could be an association of five hundred or more members, and that this could be easily done if we proceed properly.

Mr. Pettit thought that this would give the association more power and believed that it could be accomplished.

The hour of adjournment having come, the matter was dropped for the present.

THURSDAY, OCT. 30.

Convention called to order at 10 A. M., Mr. L. C. Root in the chair. A communication was read from the Warner Astronomical Observatory inviting the convention to visit it and it was decided to do so at 1.30 P. M.

The subject of "Bee Literature" was then offered for discussion by the programme committee.

Mr. L. C. Root stated that this subject might be handled with credit to the association, and hoped that all discussion might be carried on properly and result to our credit.

Mr. W. E. Clark. This matter is of great interest to beekeepers. The bee literature is a great educator to us, and we as bee-men should be careful in the discussion of this matter. I have always held that the journals belong to the editors, but I feel that the beekeepers should say what they want. If there is no more to be said I would offer the following resolution:

Resolved, That while by no means disparaging the value and usefulness of other bee journals, we, as beekeepers in convention assembled, recognize in the "American Apiculturist" a paper worthy of our support and would recommend it to the beekeepers as one of the best bee journals published in the interests of beekeepers. And permit me to add, while I offer this resolution I have no "axe to grind" and am interested in no particular journal.

Mr. W. F. Clarke. I take pleasure in seconding this motion and while so I would like to speak. There has been considerable jealousy. Some journals are connected with the supply business and while they have a right to be, yet I take great interest in an independent journal, as well as in Mr. Locke and his journal; and although Mr. Locke may yet connect himself with the supply business I hope that the "Apiculturist" will be supported, for I believe that a bee journal should be a bee journal and not connected with other matters.

Mr. T. O. Peet of Brooklyn, N. Y., stated that he would like to see a bee journal in the east published wholly in the interest of the beekeepers and free from the supply business. Such a journal must be well supported. "Gleanings" has a list of 7,000 or more subscribers. Now when the beekeepers of the east will support this journal ("The Apiculturist") it will prosper. I want to see the "Apiculturist" live and have given it my support from the beginning.

Mr. Locke is an old friend of mine and I have nothing against him and hope that he will prosper. I have no axe to grind now. I did have and ground it as well as I could. I do hope that he will succeed and that every beekeeper in the east will help him to make it so valuable that the western beekeepers will want it.

Mr. Hall stated that during the summer season he had but little time to devote to reading. He was a practical beekeeper and kept bees for profit. He had nothing against the other bee journals, but considered that the "American Apiculturist" was the cream of bee literature and hoped that it would be sustained and supported.

Mr. Pettit was pleased to endorse what Mr. Hall had said, and had intended to ask that the "Apiculturist" be made the "official organ" of the association which we should support; but upon looking the matter over he decided not to do so. He hoped that the resolution would be carried and the "Apiculturist" supported.

Mr. Betsinger. We must have a journal published free from the supply business. A paper run for the supply business is not a paper for the beekeepers. We have a weekly that is such a paper and it will be supported; until another is started I shall support it. Another point that our bee literature lacks is that it does not

give us a fair chance to give the results of our experiments, shutting us out from the reading columns and putting us in the advertising columns.

If I should tell you that I have no interest in this matter I should err. Our friend Peet in speaking of the requirements of a man who shall conduct a bee paper on the broad basis of the interests of the beekeepers must be one who is willing to work hard and for small pay. If the "Apiculturist" is at least a good journal it should and will be supported. We are here as an international convention and may disagree with Mr. Newman in one of his late editorials. I believe that we should at least place this journal upon an equal footing with the rest and that it is for the personal advantage of every beekeeper to support any good journal that will work for his interests.

The resolution was then put and carried, after which Mr. Locke stated that he wished to offer the following remarks, viz.: If those who supposed that he came here to make the "Apiculturist" the "official organ" of this association, will refer to the editorial in the September number of the "Apiculturist" they will notice that he referred to this matter and plainly stated that he had no such object in view, and in fact did not deem it advisable; also they would notice that this editorial was written prior to that which appears in the "American Bee Journal" of Oct. 15, written by Mr. Newman. He then thanked the convention for the kindly and hearty endorsement given the "Apiculturist," and stated that in the past he had endeavored to give the beekeepers a good journal and had always felt that if it was worthy of the support of the beekeepers that it would be supported.

The secretary then read a paper written by Mr. D. A. Jones entitled "The Cure of Foul Brood by Fasting."

[As the description which Mr. Jones gives of the disease is similar to other descriptions, we only give the cure.]

I could describe several methods of cure, but the following I think will be ample, and as it is very simple and easy to perform it comes within the reach of all. If the bees have any brood I do not destroy that, but I remove the queen and all the bees that can be spared from the hive, leaving only a sufficient number to take care of the brood while it is hatching. I endeavor to have them all filled with honey before morning. They are then shaken into a box having a wire-screen lid and placed in a dark, cool cellar. The box should be turned down on its side when the bees will cluster on the other side which will then be uppermost; and the wire-screen, forming a side for the time being, will allow of free ventilation.

They should be left thus for three to six days, according to the temperature and condition of the bees, which may be determined by watching; and when a few bees fall down and begin to crawl in a weak, stupid manner, and those still clustering appear to have shrunken, they may then be removed and placed in a hive supplied with empty comb or comb foundation. A little honey or syrup should be given them, when they will soon be out foraging again for themselves. I have not been able to see any difference between colonies so fasted, until foul honey which they contain has been consumed, and an ordinary colony of similar size. Both seem to go to work with the same determination which characterizes their race.

Some will pronounce this fasting plan a failure but where that has been said, it cannot have been properly tried. As soon as the brood, which was left in the foul-broody hive with some bees, as directed, is hatched out, they should be treated like the others, the combs rendered into wax and the hives and frames boiled in water for a few minutes.

The wax in the form of comb foundation may be inserted in the same and be ready in the purified hive to receive, with perfect safety, the former inmates as soon as their purification is complete. The honey in the foul-broody combs, if extracted and boiled for ten minutes, can be fed to the bees without any fear of injurious results. Boiling will kill *only* the germs of the disease.

I have subjected foul-broody combs to a temperature 35° below zero and allowed them to freeze all winter, then placed one of them in a healthy nucleus and as soon as it was filled with brood and commenced to hatch, I have found, at first examination, a very large number of larvæ affected with foul brood. Every case of foul brood which I have found in this part of Canada, I have never failed to cure at the first attempt. In fact, there are a great many beekeepers in Canada, now, who no longer dread foul brood in their apiaries as they used to, knowing that they

can cure any colony in one or two hours.

Mr. Hall said that, in 1875, he lost his whole apiary by foul brood, and, from his experience, thought that it was better to burn the hives, combs and bees rather than to attempt to clean them.

Mr. Betsinger was sorry that the time was too limited for a thorough discussion of this matter. He knew the cause of foul brood as well as a simple remedy for it, which he would present at the North Eastern Convention.

Mr. L. C. Root said that should another scourge of foul brood ever be experienced as that which visited this country some years ago, he should be inclined to leave the business. It came mysteriously and mysteriously departed.

The report of the committee on the Constitution came up for consideration and was adopted.

The programme committee then reported resolutions of thanks as follows:

To the Mayor and city authorities for their courtesy in placing the public buildings at the disposal of the Society.

To the daily papers, whose reporters have been very attentive and efficient.

To the brethren who prepared essays for the Convention.

To the President and officers for making preliminary arrangements and for management of the business of the Society.

To the hotel-keepers for their polite attentions to members.

The committee on Mr. Bengough's claim on the Society for short-hand reporting at the last meeting, recommended settlement on Mr. Bengough's proposition submitted through Wm. F. Clarke, offering to take $25 for work already done, and hand over the short-hand notes to the Secretary of the Society, to be put on file. The report was adopted.

Several small bills were ordered paid, and the janitor, who had been at a large amount of trouble and had been in constant attendance to look after warming, ventilating and lighting the building, was voted $10 for his services.

The question was asked, whether any official report of this meeting would be published? President Root stated that the "American Bee Journal" had made arrangements to give a full report, and he presumed that Mr. Locke would have a report in his paper. It was not the intention to get out a report at the expense of the Society, but the Secretary of this meeting, Mr. Benedict, would write out the minutes which he had made, and transmit them to the newly-appointed Secretary, who would produce them for reference at the Detroit meeting.

Mr. Clarke, of Ontario, said that this would entail a considerable amount of after-work upon Mr. Benedict, which it was not fair for us to expect him to do for nothing. He, therefore, moved that the Secretary be allowed $20 for his services. The motion was seconded and carried unanimously.

President Root gave a brief address expressive of his satisfaction at the success of the meeting. Though it was not so large as usual, owing to the absence of the Western brethren, it had been most harmonious, and there had been many interesting and useful discussions. He hoped that there would be a general rally at Detroit, next year.

The Convention then adjourned until the fall of 1885.

QUESTIONS AND ANSWERS.

THE object of this department is to furnish the means whereby any question of importance relating to any phase of beekeeping can be answered by a number of our most prominent and successful apiarists. Now we do not wish to ask all the questions and hope that our readers will take such interest in this matter that they will keep us supplied with practical questions of general interest. Here is an opportunity for the beginner to ask information and for the expert to have knotty questions unravelled.

So please send in your questions promptly each month or at any time. ED.]

QUESTIONS BY THE EDITOR.

1. How many colonies are you going to place in winter quarters?

2. Of what race or strain are they?

3. What style and size of hives and frames are used?

4. Do you intend to winter them on the summer stands or in the bee house or cellar, and what method do you adopt in preparing them?

5. How many pounds of honey or sugar syrup food have the bees per colony and what kind? Is any portion of this food fall honey? If so, what proportion?

6. What per cent of bees do you lose on the average during winter, and at what period in the winter do they generally die?

7. What do you consider to be the proper requisites for successful wintering?

8. Do you use any artificial methods for keeping the temperature in the cellar or bee house even? If so, what?

9. How long do you keep your bees confined to winter quarters and how many pounds of food per colony do they generally consume during that time?

ANSWERS BY J. E. POND, JR.

1. Nine.

2. Italian, Carniolan, Syrian-Palestine crossed.

3. Langstroth hive frame $17\frac{3}{8}\times 9\frac{1}{4}$.

4. On summer stands, I put them on 7 frames with division boards each side of hive. Hill's Device on frames, covered in with woollen blanket, and upper story filled with forest leaves. Entrance as wide as the width of 7 frames will spread. A high, tight, close hedge protects the north and west side of my apiary.

5. I have left in each hive about 25 lbs. of golden rod honey, gathered this fall. Two colonies I have prepared experimentally, and shall report in the spring.

6. I have not lost a colony for over eight years.

7. Answered generally in No 4, viz. Large entrance, plenty of stores so placed that the bees can get to them; space above the frames for intercommunication, and absorbents on top of frames that will allow moisture to pass off, and still retain the heat generated in the hive.

8. I don't winter in special depository.

9. I allow my bees to fly whenever they choose. They use from 5 to 10 lbs. of stores prior to middle of Feb'y; after that it depends upon the season, and the rapidity with which brood is reared. About 15 lbs. are used ordinarily from middle of Feb. to fruit bloom, which appears latter part of May.

Foxboro, Nov. 14, 1884.

ANSWERS BY J. B. HALL.

1. 283.

2. Grades, about two-thirds Italian and one-third German blood.

3. The *old* Quinby eight frame for comb honey, and two story hive for extracting.

4. In two cellars, and one bee-house. At the Ontario apiary 122 stocks in a cellar cut into a bank, with workshop above and underground ventilation 156 feet. Last winter the glass in this repository stood from 48 to 54 degrees above zero. At home apiary 81 stocks in cellar, 12 by 12 feet under dwelling, with $2\frac{1}{2}$ inch ventilating pipe attached to *stove pipe above*, and running within two inches of the cellar bottom. A 10 inch ventilator in top of cellar door to let out warm air if too warm, this repository I like the best of the three. The temperature last winter was 48 to 56° above zero.

Last and *least liked*, in a house with 16 inch walls packed with sawdust, I have put 80 stocks; glass stood last winter from 42° to 62°, above zero.

Have no method of preparing bees for winter; let the bees do that, as I am sure it will be done much better and less trouble to me.

5. I like at least 20 lb. per stock of clover or basswood honey (have no fall honey here).

6. About six per cent, but if those that are queenless and those that starve are not reckoned, the loss will be about two per cent, and that between April 20 and May 10.

7. 20 pounds of good honey, and that put in the combs in June or July, queen not more than two seasons old. *Hives not* to be opened after the honey

flow; put stocks into a *warm* cellar under a dwelling, about November 8, and let them *severely* alone until April 15 to 20 the following spring.

8. A ventilator in the exit pipe.

9. Five and a half months. Amount of food consumed I cannot say; I do not weigh them in spring. Am too busy.

Woodstock, Ontario, Nov. 14, 1884.

ANSWERS BY G. W. DEMAREE.

1. When all orders for breeding queens are filled, and bees united, I shall put into winter quarters about 100 colonies.

2. Pure Italians with the exception of a few colonies of cross-bred bees kept for experiment. I use Jones' perforated zinc to control the drones.

3. I use the standard Langstroth frame 9½ by 17⅝.

4. On the summer stands. "Summer stand" is a phrase not often used by southern apiarists. Our bees remain in the apiary yard winter and summer, all the same. I give my bees no extra attention as a general thing in the winter months, except perhaps to add an extra quilt, and to see that they have plenty of stores to winter them.

5. About 20 lbs. on the average, mostly white clover honey. We had no fall honey worth mentioning this season. We had some light showers of rain during the fall months which gave plenty of pollen, and this I regard as being favorable to safe wintering, and strong colonies in the spring. Of course these views are at variance with the "pollen fraud" so strongly urged by "Boss" novices who have no other way to make themselves prominent before the public.

6. I never lose any bees in winter except by starvation or queenlessness. Sometimes a colony is overlooked and lost in this way. My loss has not exceeded two per cent. in the past eight years.

7. When speaking for our climate I would say plenty of stores — including pollen — with dry quarters.

8. As a scientific question I regard this of much importance, and if I lived in a cold climate where cellar wintering is necessary I should certainly try by artificial means to keep the air in the cellar as nearly like that in the open air in time of pleasant weather as possible. Of course it would require experience to do this.

9. Our bees fly when the weather will permit. Our bees consume but little during the early part of the winter, but their stores disappear rapidly after breeding begins in the spring.

It requires about 25 pounds of honey to carry a strong colony through the winter and till the tenth of May, at which time the locust bloom gives the bees the first chance to store honey. Fruit trees bloom so early with us, and during rainy weather, our bees get but little help from that source.

ANSWERS BY E. E. HASTY.

1. About 130.

2. Hybrids between the German and Italian.

3. Double walled chaff-packed hives. About one-half of the apiary is on Gallup frames and the rest Langstroth.

4. Wholly on summer stands. My method is to put in a central partition of enamel cloth, and place two colonies in each hive. Each colony is given four frames of honey; the other frames being stored in the comb closet. A folded cushion of chaff occupies the upper story, beneath which is an enamel cloth cover to suppress upward ventilation as much as possible. A tray of sawdust is put under each hive, in which each colony has its own open vestibule and a *vertical entrance*. But last winter, which was a trying one, I left ten colonies just as the bees had sealed themselves up. They did so nearly as well as those carefully packed that I shall let alone a much larger number this year. Saving of honey seems to be the principal advantage of my method.

5. When packed as above I let my colonies go into the winter with nine pounds of honey each. Those having twelve pounds I consider splendidly provisioned. Of course I hold myself

in readiness to put in frames of honey very early in the spring if it is needed. Probably more than half of the winter store this year is fall honey. I think late honey very bad for winter use; but my bees must get along with it somehow or other. The peculiarity of my location is small runs of honey in spring, and a pretty good fall supply. Some years the surplus is nearly all fall honey. The amount of my harvests will neither admit of buying sugar nor of reserving early honey to winter on.

6. The "period in the winter" when bees mostly die is April; and by reporting how many colonies got through to the first of March "ye truthful apiarian" gets a reputation for wintering bees. I have had some severe losses. During our worst winter, which was 1880–1, I came down from 104 to 17, or 84 per cent., some bad blunders helping on the destruction. Last winter was a hard one, but I am not aware of any great blunders, although some colonies were sacrificed in experiments, and I went down from 150 to 111, or 26 per cent. Losses during the winter of 1881–2 were, if I remember aright, 6½ per cent. Losses for 1882–3 were 10 per cent. About 27 per cent. has been my average loss since I owned the apiary.

7. First and foremost by far, good, pure food. Next to that a quiet, patient disposition among the bees themselves. Worrying will soon destroy a colony; and if the food is not good they will be pretty apt to worry. All things that tend to make the bees comfortable and contented come in as requisites. Pure air, secured without draughts, is probably third in importance. Fourth, protection from cold. Fifth, sufficient moisture in the atmosphere of the hive to obviate thirst; but not enough to have the interior dripping wet. Sixth, reasonably quiet surroundings. Seventh, occasional periods of extra warmth and light.

In the above there is presupposed a colony of healthy bees, not weak in numbers, not all aged, and not queenless. Economy of honey depends on quiet and warmth — and don't tempt them with two large a stock on hand. Winter breeding is usually a detriment; but the progeny of one queen, the best winterers that I have, seem to hold some sort of a patent on winter breeding, and raise large amounts of winter brood.

8 & 9. Never wintered a colony in cellar.

ANSWERS BY IRA BARBER.

1. Nearly 200.

2. Italians and hybrid.

3. Old Quinby, eight frames, 11×18.

4. In cellar.

5. 30 lbs. per colony; no fall honey, all clover and basswood.

6. Less than 2 per cent for the last eight years while in winter quarters; what few fail to get through all right starve in April.

7. A good prolific queen, plenty of old bees, 30 lbs. of honey, or syrup made of granulated sugar, and a good warm cellar.

8. I do not use any artificial means for heating or cooling the room; a three inch pipe is on draft all the time, be it hot or cold.

9. From the middle of November to the first of May as a rule, and they consume from 12 to 20 lbs. per colony in that time.

De Kalb Junction, N. Y.

ANSWERS BY L. C. ROOT.

1. 68.

2. Mostly Italians.

3. Quinby and Langstroth. Size of frames, 10×15½ inside.

4. See article on "Wintering" on page 266.

5. Usually from 20 to 25 lbs. (a few more one or two pounds less), all pure honey mostly early gathered.

6. About 10 per cent late in the winter; our heaviest losses are in bees wasting after being set out.

7. See article on page 266.

8. Yes, coal fire and proper ventilation.

9. Usually from the 15th of Nov. to the first of May. From 10 to 20 lbs. according to where they are wintered. My experiments during the present winter will tend to answer, to some extent, many of the above questions.